1859 FIFTY-EIGHTH YEAR 1916

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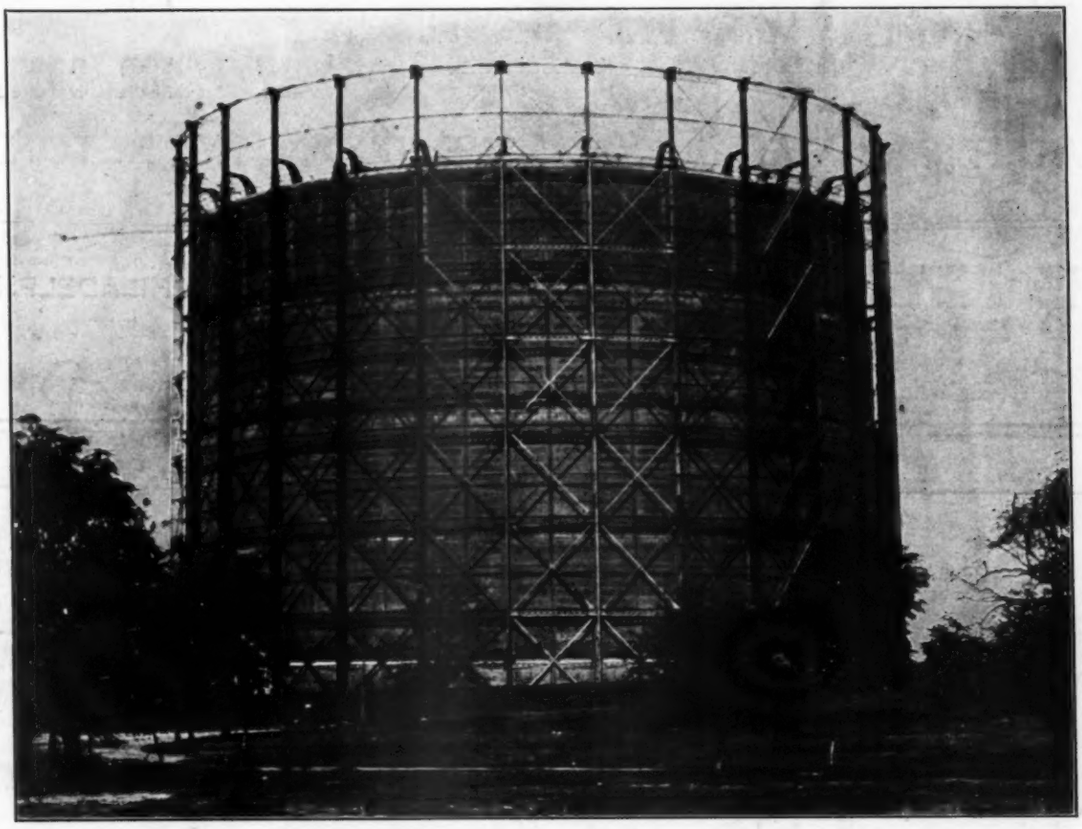

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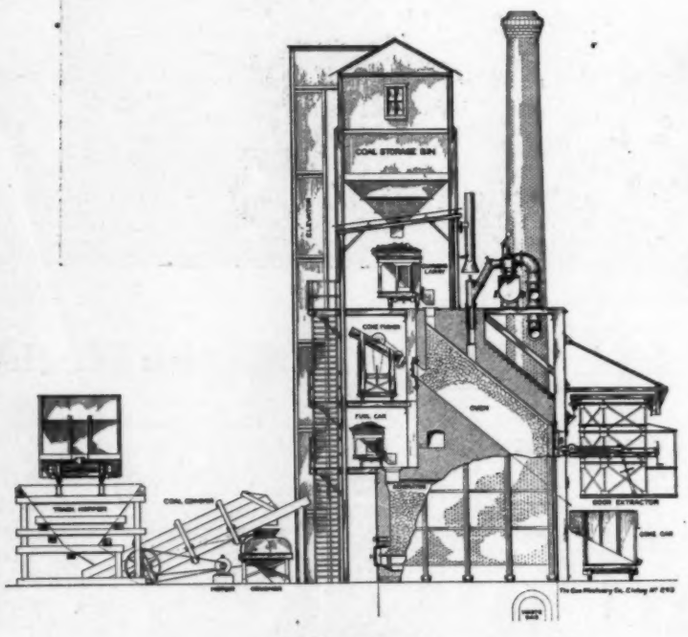

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1859 FIFTY-EIGHTH YEAR 1916

AMERICAN

GAS LIGHT JOURNAL

VOL. CV., No. 17. NEW YORK, OCTOBER 23, 1916 WHOLE No. 3,059.

Especially Large Attendance and Faultless Arrangements Characterize Annual Convention of American Gas Institute

Possibly 650 Persons Present at First Day's Sessions—Election of Officers and Formal Business of Meeting Proceed Rapidly—E. C. Jones Exudes Optimism in Reply to Address of Welcome

Punctual almost to the minute, the first day's session of the annual convention of the American Gas Institute was opened at the Congress Hotel in Chicago, Oct. 17, with approximately 650 members and guests in attendance. Members, who instinctively settled back for a nap through the usual monotonous address of welcome, delivered generally by a man who is totally ignorant of the history and the facts of the industry and who essays to please by a volley of inane words of laudation, were agreebly aroused to discover that at this meeting it was different. John W. O'Leary, a mechanical engineer of note, and president of Chicago's Association of Commerce, in his address of welcome, displayed a thorough knowledge of the history and significance of the industry, and a keen appreciation of the problems that the gas man has to deal with. E. C. Jones replied to the address in words replete with optimism. This, despite the fact that Mr. Jones had been cooped up in a train for over three days and up to the time of the meeting had hardly had a breath of fresh air in all that time, which proves that his optimism, and cheerful outlook on life, is more deeply seated than that of most men.

The report of the board of directors was then read by the secretary and accepted by the Institute. The report of the secretary and treasurer was not read, and Carroll Miller, after several false starts, presented the report of the committee on increase of membership. The affiliation committee report was read by A. M. Barnes, in the absence of the chairman.

With Herman Russell in the chair, Mr. McKay presented his presidential address. In his address Mr. McKay touched briefly upon the important part which the gas industries of this country might play in the scheme of National Preparedness and in the conservation of our natural resources. He spoke briefly on the increased price of labor and material, and closed with a fitting tribute to Sir Corbett Woodall, D. S. Knauss, and the other members of the Institute who have died during the year. Although somewhat premature, the fireworks caused by an explosive cigar, which a member had guilelessly accepted, possibly from an electrical man, and carried into the room, were evidence of the enthusiasm with which the address was received.

The trustees of the Gas Educational Fund presented their report and called attention to the possibility of a revised edition of the Catechism of Central Station Gas Engineering.

Following this report Carroll Miller again came forward, this time more willingly, and presented the report of the nominating committee. The new officers are: A. E. Forstall, president; William McClellan, vice-president, Accounting Section; C. C. Tutwiler, vice-president, Chemical Section; J. W. Batten, vice-president, Distribution Section; J. A. Norcross, vice-president, Illumination Section; G. B. Evans, vice-president, Manufacturing Section; and H. C. Abell, A. M. Barnes, O. B. Evans, T. V. Purcell, and H. M. Papst, directors.

The reports of the Public Relation Committee and the Technical Committee were accepted as printed.

W. J. Serrill, president of the Illuminating Engineering Society, presented a very strong plea for an increase in gas membership in that society, and called attention to salient features connected with the utilization and distribution of gas, as respecting its efficiency.

The revision of the constitution and by-laws was read by R. B. Brown, and E. G. Cowdery presented the report on arrangements. The Natural Gas Safety Code Report was postponed, and J. B. Douglas presented an interesting report on Analysis of Accidents.

The Manufacturing Section was presided over by H. C. Abell, and Mr. Spitzglass presented a very able paper on the "Measurement of the Flow of Unpurified Gas at High Temperature." This paper was discussed by J. W. Batten, W. H. Fulweiler, and O. B. Evans.

The report of the committee on gas lighting was extensively discussed. The safety code committee meeting was held Wednesday night with W. R. Addicks presiding. Dr. E. B. Rosa and R. S. McBride of the U. S. Bureau of Standards, O. H. Fogg, W. J. Serril and S. S. Wyer explained the code and pledged aid in its preparation.

In the distribution section meeting, held Oct. 19, the paper on Industrial Gas Appliances created a great deal of discussion. The comments of R. B. Brown and H. O. Loebell were particularly constructive. The paper on manufactured gas for house heating also aroused discussion and much interesting data on this subject was brought forth. The report on house piping was accepted as presented.

The afternoon session of the "Manufacturing Section" on Oct. 17th was called to order by the chairman, H. C. Abell.

The first matter brought to the attention of the convention was the report of the committee on "Classification of Gas Engineering." This report was presented by the Chairman of the Committee, H. W. Peck. Some discussion was advanced by A. E. Forstall. The report of the committee on "Misleading Statements" was then presented by the chairman, A. E. Forstall, and attention was called to a correction in the first portion of the paper in which the United States Bureau of Standards was mentioned. This should have been the United States Bureau of Mines. O. A. Fogg prepared a discussion in writing and the paper was further discussed by A. M. Barnes and W. J. Serrill. The whole trend of the discussion tended to show the work which might be accomplished along these lines, and it was suggested that co-operation with a similar committee from the National Commercial Gas Association should be most close.

The report of the committee on "Nomenclature" was read by the chairman, R. B. Harper, who reported satisfactory progress of the work.

The Nominating Committee for the Manufacturing Section reported the following names as candidates for the office of Manufacturing Vice-President: J. H. Taussig, A. B. Macbeth, Donald MacArthur.

The report of the committee on "Carbonization" was presented by H. K. Morrison in the absence of the chairman, C. W. Hunter. This report was very fully discussed and several very interesting points were brought to the attention of the membership.

Mr. Steinwedel desired a further sub-division of retorts, recommending special treatment for continuous vertical and intermittent retorts. He also suggested a further sub-division of horizontal through and stop end retorts. Mr. Taussig contended that not enough tests of quality were taken on intermittent retorts.

J. S. DeHart described operating conditions in New England resulting from the coal embargo.

G. F. Parker commented upon the necessity for standardization and J. A. Perry forcibly presented the necessity for proper care in the storage of coke. The report was further discussed by Messrs. Dunbar, Porter, O. B. Evans and Freeman.

The paper on "How One Gas Company Handles Its Coke Business" was presented by its writer, F. W. Seymour, and described conditions as handled in St. Louis. This paper was discussed by H. W. Gifford and J. H. Taussig, and A. K. Morrison commented on the possible elimination of vibration through shaking grids by building these bins of concrete.

Mr. Perry brought clearly to mind the fact that with an increase of moisture in coke, breeze was bound to increase. Messrs. Taussig, Haftenkamp, and C. O. Bond further discussed the paper and it proved one of the many excellent papers presented to this section.

A report of the committee on refractory materials was then presented by the chairman, J. H. Batten, and discussed in a very detailed manner. F. W. Seymour called attention to the fact that failures in refractory materials might in many cases be brought about through poor workmanship on the part of the bricklayer. Mr. Taussig spoke of many features proposed by the committee in its further work.

A paper by E. L. Weisser on "Oils for Water Gas" was presented and very fully discussed. O. B. Evans stated that oil containing as much as 56 per cent paraffine had been used with success, this oil producing 6 candles per gallon. He emphasized the benefits obtained from laboratory water gas sets and spoke of the fact that oil producing more than 10 per cent carbon should not be used.

R. C. Downing having been engaged in similar work in the laboratory of the Peoples Gas Light & Coke Company for several years, presented a most complete and valuable discussion of this subject. A written report prepared by L. E. Worthing was presented by Mr. Batten and this closed the discussion.

The section was then treated to a most interesting talk on "Coke Oven Plants," given by C. J. Ramsburg. Mr. Ramsburg presented a moving picture of the new Laclede plant in St. Louis, and from the amount of applause tendered the speaker, the appreciation of the section was clearly evidenced.

The accounting section was presided over by J. P. Crowley, and the following papers were read and very thoroughly discussed: "The Bulletin System as a Means of Instructing Employees," by C. S. Ritter; "Merit System," by W. D. Kelly; and "Organizing for Cost Reduction in Ledger Department," by F. H. Patterson.

The Wednesday session, originally intended to be a Distribution Section, was started as a Manufacturing Section with H. C. Abell in the chair. The first business on the program was a discussion of "The New Oil Gas Plant at Portland, Ore.," prepared by E. L. Hall, and read by D. W. Flowers. Since this was merely a description, and because of the absence of Mr. Hall, there was no discussion on this paper.

Dr. J. F. Wing then presented the report of the Committee on Standard Tests, and the discussion on this report was very complete. All of the gentlemen discussing the paper acknowledged the necessity of standardization, the only comments being the suggested changes. H. vonVittinghoff contributed a written discussion which was read by the secretary. Paul Doty, V. von Starzenski, Mr. White and Mr. Spitzglass likewise discussed the paper.

The Distribution Section started in operation about an hour late, but the chairman, J. D. von Maur, lost no time in getting down to business; Mr. Vincent acted as the secretary of the section. The first matter presented was a timely paper on "Gas versus Electric Cooking," the combined authors being S. C. Bratton and G. D. Mantle. This paper was presented by J. A. Frick in the absence of both of the authors. This proved an excellent paper and should be carefully read by the men interested in the gas business, and in the promotion of this industry. J. B. Meyers, in discussing this paper, gave some figures on the percentage use of energy of the two types of ranges and also drew comparisons between the cost of electrical energy and gas. In the utilization of these appliances, Mr. Meyers showed that with electricity at 3c per kilowatt hour, the result accomplished was equivalent to that obtained from the use of 600 b. t. u. gas selling at $2.83 per thousand.

H. C. Blackwell, of Davenport, Iowa, warned of industrial competition and urged that the efficiency of gas appliances be increased. E. C. Jones created great applause by comparing electrical cooking appliances and the gas range with the story of Cinderella, and he concluded his remarks with an exhortation to the gas men to push their product, to believe in their product and to follow up its use, not considering their responsibility ended until the absolute finish of combustion.

This paper was also discussed by H. W. Peck, who gave a few statements as to how an electric man might look at the question.

The report of the Committee on Distribution was presented by J. D. von Maur and the reports on Distribution Standards, International Uniform System of Pipe Threads, and on Supplying Large Buildings With Gas, were accepted by title, Mr. Forstall presenting a written discussion of the latter committee report.

The report of the Committee on Electrolysis was presented by J. A. Gould, chairman, and is to be acted upon by the directors of the American Gas Institute.

The Accounting Section was presided over by J. P. Crowley, and the following papers were presented and very well received: "Cost Records on Appliance Installations," by H. B. Lohmeyer, and "Outline on Credit System in Operation in The Peoples Gas Light and Coke Company," by Robert Blair.

Gas Institute Reception One in Name Only

There must have been some mix-up between the man who labelled the entertainment provided for the evening of the first day's session of the American Gas Institute's annual meeting a reception, and those actually responsible for the staging of the affair. There are many names that might aptly have been applied to it, but reception was not one of them. The program that was run, however, in the opinion of the writer was greatly preferable to what a regular reception and dance would have been.

Despite the earnest plea of E. G. Cowdry, that members attend in their working clothes so to speak, the vast majority were there in evening dress, the pleader being one of the most prominent dissenters. The program was started with a semi-apology on the part of E. G. Pratt, in regard to the title of the affair, and the advice that the evening would be just as pleasant as those in attendance would make it. Col. Pratt thereupon immediately disproved his own assertion by introducing some very entertaining features that would of themselves have provided a very pleasant evening, had those attending merely sat passive. There was singing, classic dancing, refreshments and ordinary modern dancing. Possibly, as a rebuke to those from the Pacific Coast, a "favorite son" was introduced—Chicago's boy soprano.

Irvin Butterworth Dead

Irvin Butterworth, vice-president and general manager of the Detroit City Gas Company, from 1906 to 1913, died at Portland, Ore., Oct. 10, after a brief illness caused by uremic poisoning, following a trip to Crater Lake, National Park.

Mr. Butterworth came to Detroit in 1903, from Denver, where he had been president of the Denver Gas & Electric Company. He was general manager and secretary of the Detroit City Gas Company until the following year, when he became president of the Grand Rapids Gas Company. After holding that position for three years he again came to Detroit to become vice-president and manager of the local gas company, which position he held until 1913.

AT GERARD AVE. CROSSING MAIN HAD TO BE DEFLECTED 50 DEG. FROM ORIGINAL LINE AND RAISED TO NEW GRADE

Use of Rectangular Sections Solves Many Problems that Would Otherwise be Difficult in Restoring Gas Mains During Subway Construction

Boxes Surrounded by Concrete to Reduce Possible Leakage to Minimum—Manifolding Resorted to Wherever Space Permits to Avoid Resorting to Steel Boxes

By C. N. GREEN

Engineer of Subsurface Structures, Public Service Commission, First District, New York

During Rapid Transit subway construction, and the attendant restoration of sub-surface structures, in New York City, many interesting problems have been encountered, the solution of which taxes the skill and ingenuity of the designer to a considerable degree. In the restoration of pipes, for example, it is sometimes impossible to restore the original pipe on account of lack of cover, and manifolding is impossible because of lack of space to accommodate the number of pipes which would be required, or it may be found that a rectangular section is more desirable than the round pipe. Of course, for water, the rectangular section is not advisable on account of the pressure carried, but for gas it smooths out many otherwise extremely difficult situations.

Problem at Railroad Crossing

In the Southern Boulevard, Bronx Borough, the subway passes under the Port Morris Branch of the N. Y. C. & H. R. R. R. with no room for pipes between the subway roof and the railroad tracks. The railroad tracks are depressed and the Southern Boulevard crosses them on a bridge made of 24-in. I-beams and buckle plates. The buckle plates are laid on the top flange of the I-beams and support the street.

BOX IN POSITION ON GRADE OF SUBWAY ROOF

MANIFOLDING IS RESORTED TO WHERE SPACE PERMITS

The gas mains were originally carried below the railroad tracks with drips under the bed of the tracks while the water main was manifolded and carried on a floor which was constructed between the I-beams of the bridge, and supported by the bottom flanges. The ducts carrying telephone and lighting and power circuits were also carried in the same manner.

There were not sufficient spaces between I-beams to permit of manifolding the gas mains, and the distance from the street surface to the under side of the bridge would not permit the full size main to be restored. Furthermore, steam locomotives are still used on the Port Morris Branch and any metal pipe or other conduit would soon corrode if exposed to the gases from locomotives. This condition necessitated a floor on which to lay the conduits which would still further reduce the available vertical space.

The gas mains were respectively 20 and 30 in. in diameter. Steel boxes were designed, one of 16 by 21 in. rectangular section, and the other of rectangular section 16 by 43½ in. inside dimensions. The boxes were made of ½ in. plates riveted to ½ in. angles at the corner of the box, the angles being placed inside the box. Splices were lap riveted and all joints were calked inside and outside. A special section was made which is rectangular at one end to fit the box and at the other end round to fit the bell of the undisturbed main. The bell was then caulked in the regular way.

TRANSITION FROM BOX SECTION TO CIRCULAR PIPE SECTION

Where joints were to be made in the field, flanges of angle iron are bent around and riveted to the end of each section and are bolted together with oiled paper or other gaskets. The boxes were laid on a 4-in. reinforced concrete floor constructed between the I-beams of the bridge. The larger box has an I-beam running lengthwise through the center of the box to stiffen the plates against the street load from above.

Both boxes were surrounded with concrete to reduce the possible leakage of gas to a minimum. This concrete for the smaller box was 3 in. thick, held in place by wire mesh, and for the larger box the space between it and the I-beams of the bridge was filled with mass concrete.

Street Had to Be Raised at Gerard Ave.

At Gerard Avenue, a single track subway loop crosses the street twice in a short distance and the street surface also had to be raised about 4 ft. In order to carry the box across the roof of the loop it was necessary to construct a depressed bay between the roof beams, and to deflect the line of the box about 50 deg. from the line of the original location of the pipe as well as to raise it to a position below the new street elevation.

A short distance away the same construction was repeated where the gas main again crosses the loop under similar conditions. This box was designed of two 12-in. channels with the back turned out and 40-in. plates, making a box 12 x 40 in. inside.

The writer believes that the first construction of this kind adopted in New York City was at Lenox Avenue and 126th Street in 1901. The Subway here comes very close to the street surface. In the top plate rivets hold in place the inside stiffeners of I-beams. Since 1901 such construction has been used many times and as far as is known no trouble has been experienced. The conditions are very trying on this type of construction on account of the impact of heavy trucks passing over it which tends to strain the caulked joints; obviously it is only used where the street cover is necessarily light. The wheel load of a coal truck carrying a load of ten tons manifestly can be distributed over but a small area at a depth of 18 in.

An accompanying illustration shows a 30-in. main, manifolded into three 20-in. mains to avoid using a steel box, which would have been too large to be accommodated in a single depressed bay of the standard type used in subway roof construction. This method is used generally rather than to resort to the steel box. The cut shows a condition at 20th Street and Broadway, where the three 20-in. pipes were of wrought iron instead of the usual cast iron pipe.

GRADE OF MAIN RAISED ALMOST 4 FEET AT GERARD AVE.

Engineering, Financial and Commercial Departments Form Natural Sub-divisions of Jurisdiction in Public Utility Control

Such Jurisdiction, so far as Authority is Concerned, Should Be Absolute, Though Heads of These Departments Should Be Considered as Acting in a Consulting Capacity Throughout the Utility

The make up of an organization for the efficient conduct of the business comprises essentially dividing the process into a number of jurisdictions in order to facilitate supervision.

In a great many organizations such divisions do not reflect the natural lines of cleavage and consequently do not work smoothly. The natural functions of financial control, engineering control and commercial control should in any public utility form the natural subdivisions.

Such jurisdictions so far as authority is concerned should be absolute, although the heads of the departments should be considered as acting in a consulting capacity throughout the utility —having, as it were, spheres of influence along the lines of their specialty.

To illustrate, the financial department, having control of the general accounting, should exercise a certain supervision over the detailed accounting in order that it may tie in, and that confusion may not result. In a similar manner the commercial end of the business may dictate the policy of the engineering department with reference to treatment of the public, and the quality of service rendered, and may encourage a certain amount of assistance in the matter of turning in prospects for new business.

These statements were made by Elman L. Hall, chief engineer of the Portland Gas & Coke Company, of Portland, Ore., in a paper presented at the recent annual convention of the Pacific Coast Gas Association. Mr. Hall stated further that:

Organization in general may also profit from the military conception of line and staff. Efficiency work proper with the attendant planning may generally be termed staff work, while the execution of the work by means of the proper organization bears a resemblance to line work.

Hard and fast lines may not be drawn, however—all employees with respect to their subordinates perform a certain amount of staff work, the proportion of which should grow larger with the more responsible positions, the ideal condition being where as much planning is done as possible by the most capable and responsible employees, and as much of the line or execution work performed by employees in subordinate positions.

The conclusion to be drawn from nearly every study is that most of the inefficiency results from letting a subordinate do his own planning, which, to be entirely frank, is a condition for which a subordinate is generally not to blame. This condition exists with a congestion of detail at headquarters.

Every Inefficient Heater is an Enemy to the Gas Man Even Though it Temporarily Brings Large Sales

Every inefficient heater is an enemy of the gas man, even though it temporarily brings him large sales, in the opinion of F. S. Wade, of the Southern Counties Gas Company, of Los Angeles, Cal. We must, therefore, work untiringly to develop heaters which will use gas more efficiently. The gas heating business needs more attention from men with trained engineering minds and perhaps less from those with "years of practical experience." All gas fired heaters should be vented so that the products of combustion will be completely removed from the space which is heated. Every gas heater which is not vented is only a makeshift, the use of which is, perhaps, the greatest force working against the universal adoption of gas heating.

Greatest Future Gain in Revenue Undoubtedly Lies in Sale of Industrial Gas

S. Tully Wilson, Declares Industrial Appliances Generally are Being Noticeably Improved and that Development of Radiant Heat in Such Appliances is Finding An Increasing Range of Usefulness

The greatest future gain in revenue in the gas industry undoubtedly lies in the sale of industrial gas, declared S. Tully Wilson, in his paper on "Industrial Gas Appliances," read at the annual meeting of the American Gas Institute, held last week in Chicago.

Industrial appliances generally are being noticeably improved. There are many ways and systems of applying the heat in the gas. Ways of saving some of the heat formerly lost, and a general advancement in efficiency and practicability is quite apparent.

The development and use of radiant heat in such appliances is finding an increasing range of usefulness and the efficiency of many appliances can be increased by its proper application.

Burners which develop radiant heat produce a higher differential temperature than blue-flame burners, and, in addition, can in most cases be placed closer to the vessel or material to be heated.

The result is an increase in the heat applied due to greater differential temperature. Radiant heat strikes right through inert, and even comparatively cool flue gases, and in addition there is hotter application of the flame or flue gases due to closer proximity.

In addition some appliances have been equipped with preheating chambers in which either the air for combustion or materials being worked, may be heated by the waste heat in the flue gases.

Future of Industrial Gas Business Assured

The future of industrial gas is assured and gas men are waking up to its possibilities, but it takes some men a long time to get out of bed after they are awake.

If it is your wish that your properties should grow rapidly, that your plants should pay, you will make a much larger showing by increasing your rate of growth than by reducing your operating expenses 1 or 2 per cent over last year. If you will put good salesmen and engineers on your industrial problems the returns will continue and the seed will grow year after year.

The industrial business may eventually produce more than 75 per cent of your revenue.

No man can foretell the future with certainty, but we know that the industries must have fuel and that gas is being favorably received. We should also realize that it may not always be possible to retain a firm hold on gas lighting and cooking, for the competition appears to be increasingly aggressive.

Industrial business awaits every gas company large or small in every city or village.

If you will determine fairly in your own minds just how much you can afford to pay to get this revenue, basing your estimate, we will say, on what it has cost you in the past to get the domestic consumption, and then, without hedging, pay it, you will find that you can get capable men who can get the business and that you can keep them.

The success of the industrial fuel business rests with the management. Your directors and your stock holders expect you to get the best possible returns from your properties, and your commercial manager, if you have one, is your employee for whom you are responsible.

The business and the revenue are there and this fact is much more important, to my mind, than the engineering details which are so numerous that many volumes would not cover them.

Industrial Problems Being Taken Up in a Systematic Way

The industrial problems are being taken up now in a systematic way. Pamphlets have been published covering a number of trades or appliances. Their purpose is to assist you in securing more business. Have you encouraged or supported this work? Has your company, or rather have your men done their share?

Every success in every city helps all. Some one must set the pace to be sure, but all of you benefit, the general manager more than the commercial manager, and, if each of you endorse the work, and encourage your men to do their part toward advancing the general knowledge of the industrial fuel end of the gas business, that end will soon become the foremost end—the most important because the most remunerative to the stockholders.

Some cities are still required to supply gas of high candlepower, consequently they are handicapped to some extent in securing certain industrial business, because their cost in the holder is a few cents higher than is necessary.

Straightening your load curve by selling industrial gas will much more than offset this difference in your monthly balance.

The candle-power standard is being reduced and is gradually disappearing, and whether you sell your gas by the million B. t. u.'s or by the thousand cubic feet, with a reasonable thermal standard, will not greatly influence your sales for industrial purposes.

A gas rich in hydrocarbons is not well suited to most gas appliances, especially atmospheric appliances. Such a gas requires more air for its combustion, and if delivered at low pressure will scarcely entrain sufficient air in the ordinary Bunsen burner to give a good flame and still not fire back. A gas of reasonably low B. t. u.'s per cubic foot will give greater satisfaction under the usual operating conditions of atmospheric burners than a richer gas.

The most important consideration, however, is that the gas be always uniform in quality. A variation in either pressure or composition will alter the adjustment of all burners, and though blast burners are easy to adjust and are usually closely watched, atmospheric burners as a rule receive little attention from the operators.

Hence manufacturing conditions should be maintained constant, as this is more important to the consumer than a high calorific value.

A reasonable calorific standard, by permitting the manufacture of a gas free from condensible hydrocarbons, will enable the plant operators to supply a nearly uniform quality at all seasons of the year.

Flame Temperature of Gas a Point of Great Importance

In increasing your manufacturing facilities it would seem to be good policy to install equipment with the ultimate object in view of supplying the kind of gas which will eventually be demanded. That is the gas which will cost the least per heat unit above 212 deg. Fahr.

There are very few industrial appliances which save the latent heat in the steam formed by combustion and eventually this will be a consideration.

Another point of great importance is the flame temperature of the gas. Many industrial operations, welding for example, demand a high flame temperature, and when the work to be done requires a temperature approximating the flame temperature of the gas the efficiency of the operation will be extremely low, while a gas of higher flame temperature though of same calorific value per cubic foot would accomplish the work readily.

Combined hydrogen and carbon give a higher flame temperature than either hydrogen or carbon monoxide; and, as a high flame temperature is essential for some operations, it is desirable from the industrial engineer's standpoint that the hydrocarbons (other than condensible hydrocarbons) in your gas be as high as is practicable.

The pressure at which gas is delivered deserves your most careful thought. Most of the atmospheric appliances require at least 2-in. water pressure for their proper operation, therefore this figure has been generally adopted as the minimum.

Higher pressures than this are certainly preferable, but whether it is advisable to go to the so-called high pressure distribution solely for the sake of certain industrial appliances might be debatable.

Increased Efficiency

Most atmospheric appliances which are used for the direct application of heat, will, if properly adjusted, show increasing efficiencies with higher pressures. This fact is well-known to apply to incandescent gas lights, but it is not so clear, perhaps, that it also applies to such applications as the top burner of a gas range.

If such a burner is designed to operate with gas at 2-in. water pressure and then is used at 6 or 10-in. pressure the results will be high capacity but no actual increase in efficiency.

To take advantage of a 10-in. water pressure the burner should have a reduced orifice and especially should the burner be placed closer to the vessel.

By adjusting the burner orifice so that the consumption at 10 in. will be the same as it was intended to be at 2 in. the flame will be shorter, which makes it possible to set the burner closer to a vessel without smothering the flame.

With a properly constructed burner it would also be possible to supply more air to the primary mixture which would reduce the size of the flame still further.

All appliances can be arranged to operate with high pressure gas and as the efficiency of many of them may be thus increased it would seem desirable from the industrial engineers' point of view to advocate high pressures—the higher the better.

It is appreciated that there are many other considerations than the appliances involved in increased pressures, such as cost of compression, main leakage, and the leakage from old and cheap fixtures and house piping.

The leakage problems can all be adjusted as they have been with natural gas, and the increase in efficiency might easily more than offset the cost of compression.

In order to obtain the burner pressure of the gas and air mixture, which is usual in most blast appliances, it would be necessary to carry quite a high pressure on the gas. Positive blast burners operate with a tuyere or burner port-pressure of 1½ to 2 in. water pressure.

This burner pressure is usually obtained by compressing air to about 1½ lb. and injecting it into the burner, the air drawing in the gas by a partial vacuum formed by the injector.

Theoretically this does not seem to be very efficient practice for if a burner pressure of only 2 in. is required on blast appliances and burners, and the gas delivered at, at least, a 2-in. pressure, then it would seem only to be necessary to supply air also at 2 in. or slightly more pressure to accomplish this result.

It is this theory which has prompted the manufacture of fan blast appliances, and their success would seem to be sufficient evidence of the correctness of the theory.

It may be asked at this point why more appliances built on this principle are not available and the best explanation I can give is that it takes much time to construct all the variety of appliances to which this principle will apply.

Back Pressure

One danger which is met in the use of positive blast appliances is that of the tuyere or burner ports becoming clogged and the air blowing back into the gas line.

Though this is a real danger I do not believe it occurs so frequently in modern appliances as it has in some of the older types. It is more likely to occur in blast appliances of home-made design where the injector is not properly proportioned or the tuyere not well made.

Where there is any indication that such an occurrence is possible, "it is better to be safe than sorry," and a back pressure valve can be installed in the gas line, or else properly constructed tuyeres and injectors substituted.

One of the great advantages of fan blast appliances is that no such danger exists when they are used, as the air pressure is no greater and in fact is usually less than that of the gas.

It is also quite practical to mix air and gas with a mechanical proportioner and then deliver the mixture to any number of heating units.

This system would seem to have many meritorious points.

The adjustment of the mixture is not dependent upon the operator of each appliance. He merely controls the amount of heat required. Hence any system which accomplishes this result is sure to increase the efficiency of the appliances as well as eliminate any possibility of the air being forced back into the gas line.

The question of when to use the various systems often arises and is a very difficult one to answer satisfactorily.

China is usually fired with atmospheric burners and many operations requiring 2,000 deg. Fahr., or even more are sometimes accomplished with them.

In other cases blast appliances are frequently used where the maximum temperature required is less than 250 deg. Fahr.

The selection of the system to be used must usually depend more upon the appliances available which are built to accomplish the purpose desired than upon what seems to be the best theoretical method of doing the work.

Appliance Business in Its Infancy

Different manufacturers have developed their product from different view points. The appliance business is in its infancy and the main object has been to accomplish some definite result. So in purchasing or selling appliances it is necessary to keep in mind the main purpose for which the appliance is to be used and use the appliance which is known to produce the required results rather than one which, according to somebody's theory, ought to do so.

A little further explanation of the application of the heat in the gas may be desirable.

The china kiln is fired with atmospheric burners because speed is not desired.

The kiln must not be heated too quickly, it must heat evenly throughout and must cool slowly. It has considerable muffle surface for the absorption of heat and is well insulated.

A confectioners' furnace built for the manufacturing confectioner is equipped with a blast furnace, though the highest temperature he cooks his candy to is 340 deg. Fahr. This is because he demands the greatest possible speed for the operation, because speed in cooking increases his output per man and decreases his unit of floor space and overhead expense; also because some candies are inferior if cooked slowly.

The melting of small quantities of soft metal is easily accomplished with atmospheric burners, and yet blast burners are used in many cases.

Each cubic foot of gas contains a fixed quantity of heat and if wholly burned all of this heat is developed, hence the problem of the appliance manufacturer is principally that of the efficient application of this heat.

Complications in Heat Application

In order to demonstrate the many complications which enter into the application of the heat from gas, we will take up one of the oldest problems in some detail.

Let us assume that we wish to heat a closed living room in which several people are quietly seated.

We will also assume that 20 cubic feet of gas per hour would supply a sufficient number of heat units to keep the room comfortable if the heat were properly distributed.

First suppose we have a large gas fixture with lava tips sufficient to burn our required gas. We will place Bunsen burners on these and the result will be that the top of the room will be overheated and the lower portion cold. There is no radiant heat and all of the heating must be done by circulation and as the burners are placed high the circulation is largely in the upper half of the room.

If we change now to lava tips and the luminous flame, we will immediately see some improvement because of the radiant heat given off by the white hot carbon in the flame.

Then changing again to inverted incandescent lights with deflectors, a marked warmth is felt beneath the lights as more radiant heat has been sent down where it is needed.

Still, most of our conducted heat is in the upper portion of the room and the circulation in the lower portion has only been improved slightly by the convected heat due to the radiation.

If we now put our Bunsen burners on the floor and eliminate the lights we find, after equilibrium is established, that the lower portion of the room is warmer than under the previous conditions because now we have complete circulation of all the air in the room, but still it will not feel as warm to the people as it might.

Let us next take a radiator with a large surface, preferably with a dark matte finish, and deliver all of our heat to this appliance.

We now have a maximum amount of radiating surface and therefore the minimum amount of hot flue gases passing directly to the ceiling. We also have a large quantity or volume of air heated by convection, rising to the ceiling and forcing the air

which is there to a lower level. We are working with lower differences in air temperature and larger volumes, and hence obtain a more uniform temperature throughout this room and more comfort for the occupants.

Therefore the gas heater which most nearly approaches the hot water radiator in its action (not in its design or appearance) should be the most satisfactory.

Bear in mind that the steam radiator has less surface and a higher temperature than the hot water radiator and so theoretically is not so good.

Blast Burners for Space Heating

Blast burners would be out of place for such work and still they are used quite widely for heating large ovens.

The reason is usually to save space as the heating units are much smaller when blast is used though no more heat is delivered or developed per cubic foot of gas burned.

The heating of japanning ovens involves as many more considerations as have been applied to room heating so that only one point will be considered.

There has recently been some competition with electricity in the performance of this operation and a comparison of costs of operation should be of interest.

The first cost of electric equipment is much in excess of that for gas.

The upkeep also to date has been heavy though this expense may be carried either by the manufacturer of the electric equipment or by the electric company supplying current in order to retain the business.

There should be no question about the ability to accomplish the work properly with electricity, for heating units can be, even if they have not already been, designed to do this.

Hence the main item of interest is operating cost.

One kilowatt of electricity is equal to 3,415 B. t. u.'s per hour, therefore 5.69 cu. ft. of 600 B. t. u. gas per hour will equal the expenditure of 1 kilowatt-hour.

Assuming a gas heater with an efficiency of only 56.9 per cent and an electric heater of 100 per cent efficiency, then 10 cubic feet of gas would equal 1 kilowatt.

With gas at $1.00 per M, this would equal electricity at 1 cent per kilowatt-hour.

As a matter of fact very much higher efficiencies than this are obtained with gas and Mr. Treadway of Detroit has found in practice that only 8 cubic feet of their gas are required to equal the work of 1 kilowatt-hour of electricity for japanning work.

The electrical equipment requires considerable space for switchboards and of course very expensive wiring.

The life of heating units is short and on account of their high cost there is a natural inclination to supply the minimum of equipment, and therefore of heat. Poor ventilation of the electric ovens is quite usual.

There should be little difficulty in securing and holding all of this class of business.

Lime-Solution for Spraying Fruit Trees can be Made Economically from Spent Oxide

E. S. Jones Points Out Way of Solving Spent Oxide Problem and of Converting What is Now Generally Considered a Nuisance into a Source of Profit

Spent oxide has been used for various purposes but it has had small money value in the country, and the great bulk of the oxide used in the United States is refuse material after it is spent and its removal and dispositon is an expensive nuisance, asserted E. S. Jones, of the Pacific Gas & Electric Company, of Sacramento, Cal., in a paper presented at the recent annual convention of the Pacific Coast Gas Association at Santa Barbara. Realizing that this material contained amounts of Sulphur varying from 50 to 70 per cent and that this Sulphur must have some value other than for Sulphuric Acid manufacture, the study of the various uses of Sulphur was begun by the Pacific Company. In California, where so much thought and capital is devoted to fruit culture, large quantities of Sulphur are used in the manufacture of a preparation known as Lime-Sulphur, for spraying fruit trees. This substance is made by the combination of elemental Sulphur and calcium oxide producing a reddish-yellow liquid of about 32 deg. Beaume.

Benjamin Kinz, an employee of the Pacific Gas & Electric Company, at Sacramento, being somewhat of an agriculturist, and dependent to a great extent upon the expensive Lime-Sulphur spraying preparations for use in his orchard, first thought of using the Sulphur in the spent oxide for the manufacture of this spray and upon his suggestion the writer immediately undertook laboratory experiments with this in view, and the successful results and simplicity of the operation were astonishing.

Process Involves Use of Two Substances

The process of manufacturing Lime-Sulphur spray commercially requires the use of two substances, Lime and Sulphur purchased in the open market and combined at considerable expense; while the Sulphur contained in the spent oxide is usually considered a waste material, but is in the most ideal condition for combination with Lime to produce this Lime-Sulphur spraying liquid.

The writer has proven three things:

That the Lime-Sulphur solution can be made from spent oxide economically in large quantities.

The Lime-Sulphur so made is equally efficacious to any other Lime-Sulphur preparation and may be safely used, when properly diluted, on all fruit trees.

That spent oxide may be returned to its original condition for gas purification.

To prepare the Lime-Sulphur it is only necessary to provide a steel or wooden cylinder of sufficient size to contain a considerable quantity of spent oxide, and so arranged that it may be easily revolved for purposes of stirring or mixing. The writer used a large barrel with a steam connection to a burner shaped set of jets at the bottom of the barrel, a steam coil was also placed within the barrel, the spent oxide (the sulphur content of which had been previously determined) was then put in, allowing 20 lb. of Sulphur to 50 gal. of the finished mixture. If the spent oxide contained 50 per cent of Sulphur, 40 lb. of the oxide to 50 gal. of mixture would be used.

The steam was then turned on and the mass heated and stirred by the steam jet until the condensation from the steam had reached the 50-gal. mark, then the steam coil was turned on, and the live steam was turned off, and, while boiling freely, 15 lb. of quick lime added, (the slaking of the lime super-heating the mixture, and adding to the reaction). It should be stirred freely and kept at the boiling point for an hour when the mixture may be drawn off through an iron wire screen and diluted for use.

Preparation Has Varied Uses

The Lime-Sulphur preparation has a wide range of usefulness, its principal value being the destroying and prevention of the dreaded San Jose scale only too well known to orchardists. Its first application was as a sheep dip in Australia, and it still is extensively used for that purpose as well as a cure for cattle mange, lice and scurvy when diluted to 15 parts water to 1 of Lime-Sulphur.

Some of its uses in the orchard other than for the San Jose scale are, the extermination of Brown mite, leaf blister mite, leaf curl, red spider, Howard scale and other insect and fungus troubles. It is also valuable in the vegetable garden for leaf eating insects, lice and spiders, and is becoming known on the chicken ranches and barn yards for fighting lice and other pests.

Waycross, Ga., Opens $100,000 Gas Plant

The new gas plant at Waycross, Ga., was opened Oct. 10. The first gas was made Saturday afternoon, Oct. 7, at the plant by Mayor Scot T. Beaton, who with a number of other prominent citizens, inspected the plant. The first gas light was lighted Oct. 10, at the downtown offices of the gas company by Mayor Beaton. The plant represents an outlay of over $100,000. About fifteen miles of gas mains have been put down to date and more will be placed as rapidly as there is demand for it.

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The Spirit of Optimism

The spirit manifest in the reply of E. C. Jones, to the address of welcome at the opening session of the annual convention of the American Gas Institute at Chicago, last week, is the spirit that is winning, or has won, for him the distinction of being the great optimist of the gas industry. Gas men have come to expect in the utterance of Mr. Jones nothing but enthusiastic hope for the morrow. Were he to utter one word of discouragement or doubt, his words would fall as a bombshell. Yet his utterances, nevertheless, inspire fresh hope, add an impetus to progress in the industry. Expressions of optimism are always welcome, for the petty discouragements of every day's work are numerous.

And there is ample ground for optimism. Mr. Jones did not magnify tthe promise of to-morrow in the least particular. All realize that the future of the gas industry is of the brightest, yet too few of us give utterance to the thought. It does the young man good to hear words of promise from the lips of established figures in the industry. Let us hope that this class of utterances will every day become more frequent. Let other big men in the industry seek to strip from Mr. Jones the distinction he has won. Doubtless he, more than any other, will be glad to see them succeed in so doing.

A Lesson in a Reception

Despite the fact that it was a reception only through an odd definition of the term, that excellent features of entertainment were provided and that it was evident that those who attended derived a great deal of enjoyment therefrom, this journal would be numbered among those doubters who assert that it would have been better—judged solely from the standpoint of entertainment derived—to have left the evening devoted to the reception at the annual convention of the American Gas Institute, held last week in Chicago, open to the members to enjoy as they saw fit, but for one important factor.

There were men with white hair there, and men with very little of any shade—many of them great men in the gas industry. The best angle to study any man from is when he is in repose. Seated as they were around a great oval, an opportunity of the best sort was afforded the young man entering, or new, in the gas industry to study those who have preceded him in it—who have made it great—to the very best advantage. With the tension of the day's work relaxed, with their minds diverted from gas, he could view them with their masks off, so to speak, and determine to his satisfaction what class of mankind they represented.

This journal feels quite sure that any young gas man who took advantage of the opportunity thus afforded him could not have failed to have received a wealth of inspiration. These veterans of the gas industry, to use a colloquial term, looked "good"; impressed one instantly as being of the type of mankind that one might fittingly aspire to be. In its veterans lies the gas industry's best refutation of the aspersions that have been cast on the quality of the men who constitute its personnel. With them to point to, the gas man has a proof of the quality of the men who are the guiding forces of the industry, which is beyond dispute.

Why You Should Stop at the Headquarters Hotel At Conventions

During recent months considerable feeling has been aroused, due to the belief that certain influences have been at work to draw gas men attending conventions away from the headquarters hotel to other hotels in the convention city. This is a most lamentable tendency.

There are many reasons why the gas man, if it is not financially inconvenient, should register at the headquarters hotel. The principal reason is that he is readily accessible to his fellows and is in the heart of things. Oftentimes fully as valuable information is imparted in the hotel lobby as is gained in the sessions. Another very excellent reason is that the gas man's association is generally under quite a few obligations to the management of the headquarters hotel for meeting rooms, etc. Making this hostelry his stopping place during his stay is one way in which the gas man can do his share towards discharging the obligations of his association.

It has been stated that various gas journals have published advertisements of competing hotels in convention cities. There are several very substantial reasons why this should not be so. At no time of the year should any hotel advertising appear in the columns of the trade or technical journals of the gas industry. There is no place for it there.

The technical or trade journals are the gas man's sole source of information in regard to current developments, not only as pertains directly to the editorial pages, but to the advertising pages, as well. To compel the gas man to wade through a mass of nonsense and irrelevant matter, to unearth the technical information he seeks in the editorial pages would not be long tolerated. It is equally an abuse to compel him to wade through hotel advertisements to find the information he seeks in regard to developments in the manufacturing line. The technical and trade journal is an implement of the gas man's trade. It should contain no matter whatever, save that which directly pertains to his work.

It can perhaps carry considerable irrelevant matter, and yet serve its intended purpose in an inefficient way. But it cannot hope to be an efficient tool of the industry unless it aims to place the information the gas man needs before him in the most accessible manner.

The gas man is, and should be, a busy man. Every effort made to expedite his work is an effort towards progress in the industry. Supplying him information in regard to current developments in the industry in the most compact and "get-at-able" form on the part of the trade or technical journal is one method of economizing his time and thus expediting his work.

An Industry Progresses In Proportion to the Interchange of Ideas Within Its Ranks

Any industry is judged, to a very great extent, by the number of authors in its ranks. The only way that a person can learn about any kind of business is to read or to hear people talk about it. In these days of printed publicity it is more and more necessary to rely upon the printed page.

Many a man has complained that the young men, who are energetic and ambitious, the men who really do an industry good, are more likely to enter the electric industry than they are to enter the gas industry. This seems to be due, to a very great extent, to the difference in the number of men who write about electricity and the number of men who write about gas. Should we carefully examine the authors' index of all the electrical literature and all the gas literature published during the past five years we would be surprised to learn how many men in the electrical business are writing and how few men in the gas business are doing so. We would also be surprised to learn the amount of literature turned out by each individual of the respective industries.

Taken in round figures we find there are 5,000 electric light companies having a total capitalization of $1,500,000,000, while there are 1,000 gas companies having a capitalization of $1,000,000,000. In other words there are more electric companies than there are gas companies, but the average size of these electric companies is smaller than the average size of the gas companies. In the matter of writing it is much the same. There are a great many who write articles on electricity. Many of these write only a very few articles during the course of five years. There are only a few who write articles on gas. Many of these if not most of them write a great many articles in the course of five years. The result is that the average per contributor is not so great in the electric light business as it is in the gas business. The large number of small electric companies compared to the small number of large gas companies seems to have had an influence in making electricity more popular with those who do write than is gas.

There is only one way that we can learn and progress. This way is to learn from each other. If fewer men in one industry contribute their ideas for the good of the industry than is the case in a competing industry, the one having the most thorough exchange of ideas will prosper and grow most. The gas business is now entering an era of competition that promises to be far keener than any competition that has ever been experienced during the past hundred years of its existence. The only way to meet this successfully is to have a complete interchange of the ideas of those who are doing active work in the industry. This can only be brought about by encouraging men, especially the young men on whose shoulders the problems of the industry will soon fall, to write. It will be for the good of the industry to have more of these men write papers for the gas associations and contribute articles to the technical journals.

The future of the industry lies in the ideas these men have. They owe it to the security holders of their companies to place their most successful methods and ideas on paper in order that others may learn. The older and more influential men owe it to the industry to encourage these young men to express their ideas, and, after the ideas are once expressed, to correct erroneous ones by constructive criticism.

Co-operation

To one of a mechanical turn of mind there is scarcely anything so pleasing as a well oiled, noiselessly and smoothly running automobile. Such a machine obeys the slightest wish of the operator and no task seems too great for it to perform. Remove the oil, however, and the very nature of the machine is changed. Try to drive it now and what a contrast you have. The only change that has been made in the machine is in its lubrication, but in operation it acts just the opposite of a well cared for machine. It rattles and screeches. It is slow to respond to the will of the operator. It makes much of even the smallest obstacles, is very trying to the nerves of both the driver and the passengers, and in a very short time is completely ruined.

Any machine to run noiselessly and smoothly must be well lubricated. Each part must be oiled with the particular kind of oil which best fulfils the lubrication requirements of that part.

An organization is very much like a machine. In place of the metal parts we have human beings, and in place of oil and lubrication we have harmony and co-operation. Any organization which is permeated with harmony, co-operates and runs noiselessly and smoothly. It obeys the slightest desire of the chief executive and no obstacles seem to be too great for it to overcome.

Remove the harmony, however, and we find co-operation lacking. In its place are petty jealousies and antagonisms. The organization now runs roughly, and noisily. There is much complaining and fault finding. It makes much of the smallest obstacles, is very trying to the nerves of both the executives and the rank and file of the employees, and is bound sooner or later to bring disaster to those who control and direct it.

Any organization to run smoothly must be provided with harmony from above. If the chief executives themselves cannot agree, if they do not co-operate, it is hopeless to look for co-operation in other parts of the organization. Just as in an automobile the greatest attention must be given to the lubrication of the engine if good results are to be secured, so in an organization the greatest attention must be given to cultivating harmony and co-operation among the high executives.

An automobile without oil may be able to coast for some distance without doing irreparable damage to itself. In the same way a business organization operating in a field where it enjoys a monopoly may be able to exist for some time even though co-operation and harmony are completely lacking.

During the past century gas has had very little competition. It has practically enjoyed a monopoly. This condition, manifestly, has changed. Gas companies need to look to their organizations to see that they are well supplied with the oil of harmony and that each part properly co-operates with all the other parts. Regardless of all else that may be done, if co-operation is lacking, no great progress can be made. Co-operation is of far greater importance than selling prices, selling organizations, or any other efforts that may be made to meet competition, for without co-operation all these other efforts are fore-doomed to failure.

The Efficiency Kitchen

The United Gas Improvement Company of Philadelphia recently set up in its show room where it could be seen from both the interior and exterior, an efficiency kitchen that demonstrated the efficiency of gas and showed all the up-to-the-minute sanitary and labor saving devices in a way that impressed their advantages upon both the housewife and her good man.

The floor was covered with linoleum—easy to keep clean—and the walls covered with brown and white sanitas cloth that could be wiped with a damp cloth whenever desired.

At one side was a gas incinerator, which solved the problem regarding the disposal of garbage. A card attached advised "Burn up the garbage—a cheap and sanitary way to dispose of it."

On the white enamel-top table a pancake griddle, "Bakes quickly brown and tasty cakes, Price $1.00," and a waffle iron "Makes waffles just as you like them, Price $1.25." A big gas range had on it a gas iron to which was attached a card: "Saves endless walking, Keeps hot from start to finish, Price $3.50." Attached to a gas hot water heater was a sign: "Hot water is economical—and ready when you want it if you use a gas heater. Price $13.50—terms $1.25 a month." A big cloth sign extending entirely across the room declared:

AN ALL-GAS KITCHEN IS A COMFORT, A PLEASURE, A DELIGHT, AND A MONEY SAVER EVERY DAY IN THE YEAR

Gas lamps, with mantles, properly shaded, lighted up the room at night, and showed off its sanitary appointments to good advantage. One of the most valuable points of this display—a fact that is too often overlooked by the average gas man—was that every article for sale was distinctly though not glaringly labelled with the price, together with some catchy little phrase calling attention to its advantage or good points.

In the corner window stood a cabinet gas range, which had a series of green cords running from the door knob to the opposite wall, forming a ray of light, and to each of these cords was attached a long narrow strip of white paper, lettered in green: "Clean and reliable," "Small and compact," "Cook with Gas," "$2.25 down and $2.00 a Month," and "$21.75—Buy One To-day." The range was set with aluminum cooking utensils, giving it an especially attractive appearance.

New Gas Rate is Filed

The new tariff of gas rates in Cincinnati, Ohio, effective Nov. 4, was formally filed with the State Utilities commission by the Union Gas and Electric Company. President Freeman of the company stated that this tariff was in line with the rates provided in the ordinance passed by Council with the exception of the rate and discount to industrial consumers, which is not affected by Council's ordinance. To industrial consumers the rates are slightly altered. The old rate was: First 200,000 cu. ft., 40 cents; next 100,000 32 cents; all over 400,000, 22 cents. The new rate is: First 200,000, 40 cents; next 200,000, 35 cents; next 200,000, 30 cents; next 400,000, 20 cents; all over 1,000,000, 18 cents.

Troy Gas Company Wins Commendation of Local Press

The *Troy (N. Y.) Sunday Budget*, of Sept. 24, publishes the following commendation of the efforts made by the local gas company to give its consumers the service their support entitles them to:

"Public service corporations, and especially those which are successful and profitable, are not very often popularly regarded.

"Invariably the consideration given to them is from an opposite point of view.

"They are looked upon as oppressive, greedy and money-making affairs, with no object other than to take from the people all they can and give as little in return as possible. As a result of this condition, which is in some ways very characteristic of the American people, any of their deeds that would naturally call for commendation are gazed on from afar with unmitigated suspicion, and the public waits expectantly for the development of the project which it was led to believe was behind the public spirit or benevolence that prompted the worthy act and usually waits so long that it forgets no such purpose was revealed, but the impression remains nevertheless that if the corporation did any good in any measure there was a good and substantial reason for it.

"This is an idea that is all wrong, yet is a view which is only too often taken, not only here in Troy, but nearly everywhere. Few persons have ever stopped to consider the justice of the position in which they unconsciously join, and it is doubtful even if they did that they could see it correctly. for their minds are perverted by the hue and cry raised against the alleged cruelties. discriminations and disregard for public opinion which such anonymous authors as that distinguished gentleman, Pro Bono Publico, and others of his like have aroused.

"The Troy Gas Company is a public service corporation without which the city of Troy would be a relic of the ancient past. The company has afforded Troy and several places in this vicinity, gas and electricity for lighting, heating and fuel purposes. It is an up-to-date and fair corporation which has kept pace with progress. It has franchises which enable it to control nearly all of the business in its line in Troy. Likewise it has acquired considerable business other than that which was almost guaranteed by its franchises. It has been successful, both from the standpoint of serving the public and from the standpoint of making money for its stockholders. The company has made money because it has been properly handled."

Itemized Unit Cost of Gas Sold by Boston Company

As provided, the Acts of the Massachusetts Legislature of 1906, which prescribe that the Boston Consolidated Gas Company shall publish annually, in September, in a Boston newspaper, a report showing the cost per 1,000 ft. in the holder, itemized so as to show the cost of manufacture, wages, and principal materials; also cost of distribution, amount per 1,000 ft. charged for depreciation, maintenance and repairs—such a schedule has been issued and is in brief as follows:

Gas purchased during year	2,845,050,000 cu. ft.
Gas manufactured during year	3,563,317,000 cu. ft.
Total	6,408,367,000 cu. ft.
Gas sold during year	6,308,530,059 cu. ft.

ITEMIZED COSTS

	Per 1,000 Cu. Ft.
Wages at works	$0.0242
Coal and Coke used in making gas	0.0724
Coal, coke, etc., used in making steam	0.0119
Enriching materials	0.1293
Purifying materials	0.0016
Water	0.0018
Stable and Lab. wages and other expenses at works	0.008
Total operating expense for manufacture of gas	0.2418
Deduct value of residuals	0.0136
Total cost in holder per 1,000 ft. made	0.2554
COST OF PURCHASED GAS	
Average purchase price of crude gas	0.2886
Purification and storage expense	0.0097
Total cost and operating expense	0.2983
Maintenance and repairs of storage and purifying plant for purchased gas	0.0014
Total cost in holder	0.2997
Average cost in holder of manufactured and purchased gas	0.2751
Average cost in holder of all gas per 1,000 cu. ft. of gas sold	0.2794
COST OF DISTRIBUTION AND GENERAL EXPENSE	
Distribution wages and expenses	0.0425
Maintenance and repairs of distribution system	0.0313
Total	0.0739
General Expense and Management	0.0568
Taxes and insurance	0.0776
Total dist. and gen'l expenses	0.2083
COST OF MAINTENANCE AND REPAIRS	
At works	0.0077
Main and services	0.0178
Meter	0.008
Distribution works and holders	0.0056
Storage and purifying plants	0.0006
Total	0.0397
TOTAL COSTS, INCLUDING REPAIRS	
Cost of mfg'd and purchased gas, per 1,000 cu. ft. sold	0.2794
Cost of distribution and general expenses	0.2083
Total cost (excluding interest, depreciation and reserves)	0.4877

News of the Gas Industry

EXCURSIONISTS GET A BREATH OF FRESH AIR AT FORT WAYNE
J. P. CONROY IN FOREGROUND

Petersham, Mass., to have Gas Street Lighting

The Athol Gas & Electric Company and the town of Petersham have made arrangements whereby the local company is to supply the town of Petersham with street lights at a cost of $1,500 a year, for a period of five years. The town of Petersham is to pay $800 and the remainder of the money is met by popular subscription.

Twin City Gas & Electric Company to Move Headquarters

The headquarters offices of the Twin State Gas & Electric Company, which have been in Dover, N. H., are to be moved as soon as possible to Brattleboro, Vt.

Court of Appeals Sustains Commission in Gas Main Extensions

The Court of Appeals, in a decision that has just been received in New York City, holds that the courts have no control over the Public Service Commissions of the State, that an order given by either one of the commissions to a corporation must be obeyed, and that the courts may not overrule the order unless it violates the law.

An order of the commission directed the New York and Queens Gas Company to extend its lines from Bayside across about half a mile of marsh to Douglaston and Douglaston Manor. The company obtained a writ of certiorari from the Appellate Division, and on March 9 last the opinion of this court was that the "facts presented by the record do not present a reasonable justification for the order."

106 Make Trip to Chicago on Gas Institute Special

Problems of Manufacture, Distribution, Selling and Claims in Territories Ranging from North, South, East and West, and Reaching Out to Porto Rico and Brazil, Discussed on Trip—Arrangements for Comfort of Passengers Perfect

One hundred and six passengers travelled to the American Gas Institute convention at Chicago, on board the special train which left New York City, at 5.04 p. m., Oct. 15. From start to finish the trip was characterized by the get-together spirit that was manifest throughout the train. In every car groups discussed this or that problem until it would seem that the last word in its solution had been uttered. An encouraging feature of these gatherings was that their memberships were constantly changing. Men moved about and the "clique" spirit was noticeably absent.

The Consolidated Gas Company, of New York, was represented aboard by more than 25 members of its personnel, among them being: Henry L. Underhill, engineer of the purchasing department; William D. Kelley, general superintendent of meters; George E. Woods, assistant chief engineer; H. B. McLean, general superintendent of the gas appliance department; M. E. Mueller, assistant superintendent of manufacture, Astoria plant; A. W. Stark, James S. Kennedy, superintendent of the Standard Gas Light Company, and Harold Carpenter, who was resident engineer on the Astoria Tunnel.

J. Alex Mayers, president of the Public Service Construction Company, which built the Porto Rico gas plants, was aboard, and was much in demand as a speaker. His accounts of the difficulties met in introducing gas to a people to whom it was hitherto unknown, proved very interesting to many.

At Philadelphia, D. J. Collins came aboard, with company, and made directly for the Diner, but with small success. Accompanying him were Henry Wharton, formerly with the Westmoreland Coal Company, and James B. Douglas, who gets out "Safety News." Early the following morning Mr. Collins led a discussion on the matter of tree damage. Perhaps he withheld some information regarding the subject, but a casual listener gained the impression that the only cases of such damage that occurred in the course of his experience were caused by electricity.

The gas lighting interests were represented by Charles W. Wardell, illuminating engineer of the Welsbach Company; J. P. Conroy, manager of the General Gas

CONVENTION
E. C. JONES AT GAS INSTITUTE

J. ALEX. MAYERS AND A. M. BARNES

CHARLES W. WARDELL AND
C. E. REINICKER

Light Company, and William W. Barnes, of Bayley & Sons, Inc.

To all outward appearances the New York & Richmond Gas Company must have shut up shop for the week, as both William J. Walsh, its president and manager, and William McCleary, its superintendent, were on board the train, and seemingly free from all care and worries.

The gas industry acknowledges a considerable indebtedness to the U. S. Bureau of Standards, but Charles E. Reinicker, who was aboard, made certain that his fellow-passengers did not overlook the fact that there is such a department, and that gas men in general would profit considerably if they became better acquainted with its work.

Alfred E. Forstall, who was elected president of the Institute at the first day's session, was a passenger on the special, but beyond shaking hands all around, was not much in evidence, being busy most of the way on papers for the coming meeting.

All of the travellers got a good night's rest, as the arrangements were excellent and the night agreeably cool. The following day was also a good traveling day until towards Chicago, where unreasonably warm weather was encountered and some discomfort was caused thereby.

At Valparaiso, Ind., the train was halted to take on board the Chicago reception committee: Thomas D. Miller, A. B. Eaton and B. F. Lyons, and its retinue, consisting of Frank Florentine, chief clerk of the Congress Hotel, a baggage transfer man and volunteers. Mr. Miller devotes himself principally to coal. He also claims some skill in medicine, and in one case unhesitatingly wrote out a prescription for bronchial ailments with magnificent confidence, Latin figures and all. The remedy, according to Mr. Miller, is infallible.

At the station the party found private automobiles waiting to carry its members to the hotel, and due to arrangements previously made, even the slight inconvenience of registering was

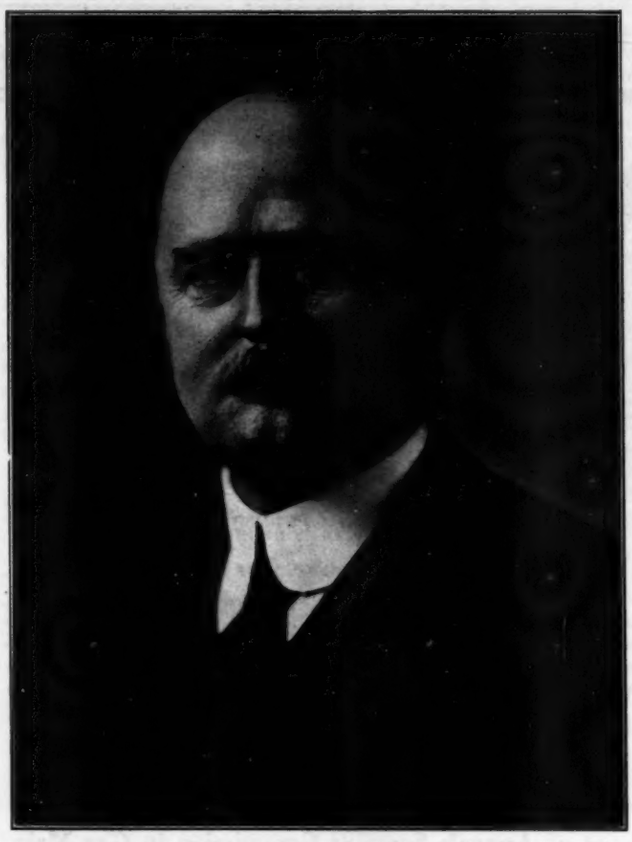
C. E. REINICKER, W. W. BARNES AND W. J. WELSH

eliminated, the guests being conducted directly and without further ado to the rooms previously reserved. W. Gorman looked after the reservations.

In brief, from the time the travelers boarded the train in New York, until they found themselves established in their rooms at the Congress, not one detail was found lacking that would make for their convenience and comfort. The "hitch" is generally the most prominent feature in most affairs of this kind. In this one it was prominent entirely because of its absence. No commendation of the efforts of those responsible for the arrangements could be too high or exaggerated.

N. C. G. A. Manufacturers Section Elects Officers for Ensuing Year

At the meeting held in Chicago, Oct. 17, the Manufacturers Section of the National Commercial Gas Association, elected the following officers for the ensuing year: President, Harry D. Schall, Detroit Stove Works, Detroit Mich.; first vice-president, Russell Sard, Rathbone, Sard & Company, Albany, N. Y.; second vice-president, Harry W. Hunter, Baltimore Gas Appliance Company, Baltimore, Md.; secretary, Will W. Barnes, Bayley & Sons, Inc., New York, N. Y.; treasurer, Charles W. Wardell, Welsbach Company, Gloucester, N. J.



CONSULTING ENGINEER OF BOSTON COMPANY WHOSE TERM AS PRESIDENT OF A. G. I. HAS EXPIRED

William E. McKay Joins Ranks of Past Presidents of American Gas Institute

William E. McKay who joins the ranks of past presidents of the American Gas Institute, was born in Philadelphia, Pa., in 1865 and received his professional education at Trinity School and Rugby and U. S. Naval Academy.

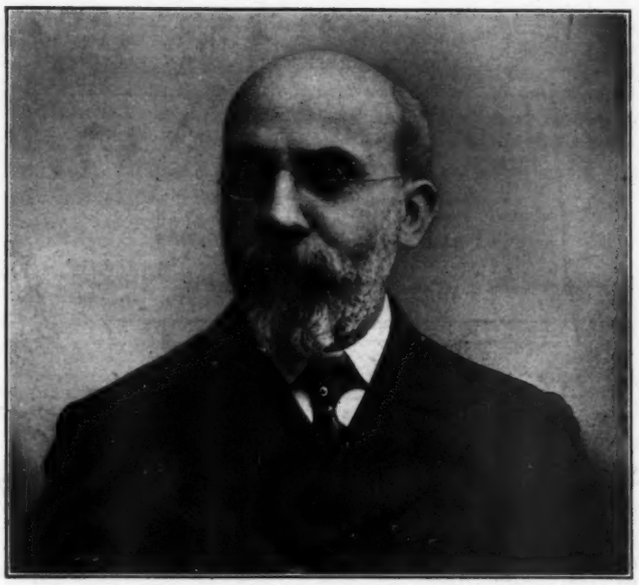
He entered the gas business as assistant engineer of the Boston Gas Light Company in 1887 and continued in this capacity until 1905, when he became Engineer of Construction of the Boston Consolidated Gas Company. In 1910 he was made vice-president and general manager of the New England Gas & Coke Company and continued in that office up to the present. He is also consulting engineer of the Boston Consolidated Gas Company and president of the New England Manufacturing Company.

He is a member and past president of both the New England Association of Gas Engineers and the Guild of Gas Managers of New England, as well as the New England Society Naval Engineers. He is also a member of the Society of Gas Lighting, Boston Society Civil Engineers, and National Commercial Gas Association, as well as the American Gas Institute.

From 1881 to 1885 he was a cadet at the U. S. Navy Academy and from 1896-1898 was lieutenant in the Naval Brigade of the Massachusetts Volunteer Marines. During the Spanish-American War he was lieutenant in the U. S. Navy, and in 1900 served as captain and chief of the Naval Brigade of Massachusetts. Since 1908 he has been commissioner of the Massachusetts Nautical School.

Commercial Managers and Efficiency Experts From Three States Meet at Dayton

More than 75 commercial managers and efficiency experts of Ohio, Indiana and Illinois, gas companies were present at the offices of the Dayton Gas Company on Oct. 6. They opened a two-day convention.



DURING HIS CONNECTION WITH VINCENNES COMPANY G. G. RAMSDELL STARTED MOVEMENT FOR LARGER GAS ENGINES IN THIS COUNTRY

George G. Ramsdell Succeeds Himself as Secretary and Treasurer of the American Gas Institute

George G. Ramsdell, who succeeds himself as secretary and treasurer of the American Gas Institute, started in the gas business as general manager of the Citizens Gas Company, Vincennes, Ind., in 1879.

Among the society offices he has held are secretary, Society of Gas Lighting, president, American Gas Light Association, president, Western Gas Association, honorary member, Societe Technique de l'Industrie du Gas en France, member, American Gas Institute, Illuminating Engineering Society, and the National Commercial Gas Association.

In 1880 he imported and placed in operation a 17 h. p. Gas Engine in Vincennes, which was larger than any gas engine in the country at that time. This undoubtedly started the movement for larger gas engines. In 1905 he introduced the inverted gas lamp in the United States.

The Gas Company Shows the Way

The Consolidated Gas Company has received a great deal of favorable publicity as a result of a bread-making exposition held in its offices. It showed how six pounds of bread may be baked at a cost of 26 cents, including fuel. This makes the total cost of a twelve-ounce loaf 3¼ cents, although the regular retail price in the city for the same size loaf is 6 cents.

New England Section of N. C. G. A. Begins Regular Meetings

The New England Section of the N. C. G. A. resumed its regular meetings on Sept. 29, at the Boston City Club, with a very good attendance.

Mr. Kuenhold, of the Scientific Heating Company, Cleveland, Ohio, addressed the members on the subject—"Garage Heating." His remarks were both interesting and instructive and brought out a very lengthy discussion. Mr. Lake, secretary of the State Fire Prevention Commission, was present and outlined to the members what the state laws called for regarding garage heating.

The next meeting which will be the annual meeting and the election of officers will be held on Friday evening, Oct. 27. A very interesting program has been arranged and a large attendance is expected. Mr. Banburg, Advertising Manager of the New England Telephone and Telegraph Company, will talk on the "Weavers of Speech." This talk will be illustrated by stereopticon views giving a complete description of the telephone system.

New President of the American Gas Institute Long Connected with the Industry

Alfred E. Forstall, who was elected president of the American Gas Institute at the Annual Convention held in Chicago, was born in New Orleans, La. He entered the gas business in 1884 with the Chicago Gas Light & Coke Company. He was appointed assistant engineer of that company in 1889 and general superintendent of the Newark Gas Light Company in 1891. He was made general manager of the Montclair Gas & Water Company in 1897 and began practice as consulting engineer in 1898.

ALFRED E. FORSTALL STARTED IN THE GAS BUSINESS WITH CHICAGO COMPANY IN 1884

Among his society memberships are the following: American Gas Light Association, Western Gas Association, Ohio Gas Association, American Gas Institute, National Commercial Gas Association, Natural Gas Association, Society of Gas Lighting, Societe Technique de l'Industrie du Gas en France, Illuminating Engineering Society and Society of Chemical Industry.

From 1897 to 1904 he was secretary of the American Gas Light Association and from 1913 to 1915 director of the American Gas Institute. He was secretary of trustees of the Gas Educational Fund from 1898 to date.

Over-Inspection by the City Hold Up Building Operations in Queens

The gas companies operating in the Richmond Hill-Woodhaven sections of the Borough of Queens, New York City, have within the past twelve months paid a total of $7,597 to inspectors named by the deputy commissioner of water supply and electricity; also, inspectors appointed by the Borough President for inspecting the same work, a total of $6,000.

Pittsfield, Mass., Gas Employees Hold Fall Meeting

The full season of the Gas Company Employees' Association of the Pittsfield Coal Gas Company started Oct. 6, with a varied and interesting program. President Ralph Volin presided and about 60 were in attendance.

Ralph Hayward, of the Connelly Governor Company, of Chicago, Ill., gave an interesting and instructive talk on the workings and construction of high pressure governors such as are being used by the gas company on the new Lenox-Lee extension. A lively discussion followed this talk in which several members took part. W. G. Vought, of the New Process Stove Company, of Cleveland, Ohio, was called upon for a few remarks.

The plans for the future meetings for this year were outlined by secretary John J. Quinn. Each meeting will be devoted to one particular subject. The November meeting will be devoted to gas lighting. A demonstration and exhibit of many of the latest semi-indirect lighting bowls will be arranged. An expert from the Welsbach company factory at Gloucester, N. J., will be on hand to conduct the demonstration. This form of gas lighting has been very thoroughly developed of late and is now in general use. A report will be made of the National Commercial Gas Association convention. This affair will be held in Atlantic City, the week of Nov. 13th.

Among other things a moving picture of the manufacture of wrought iron pipe is being considered. Also the application of gas for industrial purposes will be taken up for discussion at a meeting in the near future. A varied exhibit and demonstration will be held in connection with this subject.

Following the business meeting, Myles W. Illingworth gave his interesting program of stories, magic art and character impersonations. The meeting was concluded with a luncheon and review of the association since its organization over three years ago by Manager H. C. Crafts. The season just started promises to be a very active one for the local gas men's club.

Tacoma Takes Advantage of Technicality to Impose New Tax on Gas Company

Hard pressed for revenue with which to offset the $227,000 cut that has been made in the 1917 budget of the city of Tacoma, Wash., the City Council, on Sept. 26, tentatively plans to impose a franchise tax on the Tacoma Gas Company for the privilege of selling gas other than for lighting. This, the council believes, will materially increase the annual revenue.

It was brought out that the gas company's franchise covers only the sale of gas for lighting purposes, and that in the meantime, the company has, naturally, sold its product for many other uses without restriction.

The plan apparently is to take advantage of this technical limitation in the franchise to obtain the additional revenue that the city's legal restrictions do not permit its obtaining by the ordinary means.

Coal Shortage Forecasted

Coal is going to be a pretty hard thing to get before long, asserts the *Nation's Business*. Some users have laid in stocks during the summer. For others the operators of mines see only difficulties.

During the first six months of the year the mines seem to have attained their greatest production of coal, according to one figure, turning out sixty-one million tons, an increase of thirty-five per cent. In August, 451,000 cars of coal were sent from the mines, or 42,000 more than in August last year. These figures may presage a production this year of 597,000,000 tons of which 550,000,000 would be bituminous. In a sense the consumption of eight million tons of coal a month represents the increase of industrial activity this year over last.

But consumption of coal has been on a huge scale. At the first of July it was estimated that stocks of coal at the head of the Lakes were so low that they could not be replenished during the summer by water shipments sufficiently to avoid a shortage in the winter.

Shortage of labor at mines and at docks where coal is handled and shortage of cars are described as the chief elements in the situation that is developing. A coal-handling dock at Chicago, which normally employs seventy men, as few as eleven or twelve have been at work, because more could not be found. Lack of large stocks of water-borne coal along the Great Lakes will of course increase the demand for cars to carry coal to the districts supplied from the ports, and this at a time when the demand for any kind of car is already great.

Natural Gas Breaks Record

Statistics just completed by the Geological Survey show that more natural gas was used in the United States in 1915 than in any other year. The quantity used was 628,578,842,000 cu. ft., which exceeds by nearly 37 billion cubic feet, or 6 per cent, the former record, established in 1914.

The average price of this gas at the point of consumption was 16.12 cents a thousand cubic feet, and its total market value was $101,312,381, a gain of 0.22 cent in unit price and of $7,196,857, or 7.6 per cent, in total value compared with the figures for 1914.

Credit for the increased production of natural gas belongs, in the order given, to Ohio, Oklahoma, West Virginia, Pennsylvania, Kansas, and California, which together produced nearly 40 billion cubic feet more in 1915 than in 1914. Significant increases, important locally but unimportant as affecting the production of the entire country, were credited to Arkansas, Wyoming, and Missouri.

The increases in the yield of gas may be attributed, in Ohio, to the remarkable success of drilling in the Cleveland gas field, Cuyahoga County; in Oklahoma to a decided expansion of the local casinghead-gasoline industry and to a greater utilization of the vast reserves of gas in the Cushing district; in West Virginia to increased demand for this deal fuel from sources outside the State; in Kansas to the continued development of the Augusta gas field, in Butler County; and in California to expanding markets in the southern part of the State and to increased use of casinghead gas for making gasoline.

The principal beneficiaries of the increased production of natural gas were, in the order named, Pennsylvania, Oklahoma, Ohio, California, and Kansas, which together consumed nearly 38 billion cubic feet more in 1915 than in 1914.

Of the total production of natural gas in 1915, it is estimated that 217,202,943,000 cu. ft. or 35 per cent, was distributed to 2,195,081 domestic consumers at an average price of 28.32 cents a thousand cubic feet, and that the remaining 65 per cent was distributed to 18,358 industrial consumers at an average price of 9.7 cents a thousand. Compared with the corresponding statistics for 1914 these figures indicate, with regard to the gas supplied to domestic consumers, gains of 7 per cent in quantity, 6 per cent in the number of consumers, and 0.28 cent in average price; with regard to the gas supplied to industrial consumers, gains of 6 per cent in quantity, 3 per cent in the number of consumers, and 0.12 cent in average price. The percentages of the total quantity consumed for domestic purposes was slightly greater in 1915 than in 1914.

State	Produced			Consumed		
	Quantity (M cubic feet).	Cents per M cubic feet.	Value.	Quantity (M cubic feet).	Cents per M cubic feet.	Value.
West Virginia	244,004,159	14.93	$36,424,263	94,976,705	7.85	$7,451,003
Pennsylvania	113,691,690	18.59	21,139,605	176,367,235	17.06	30,087,667
Ohio	79,510,032	21.87	47,391,060	146,724,989	21.74	31,900,764
Oklahoma	87,516,753	10.51	9,195,804	65,691,366	7.70	5,058,526
California	21,891,035	18.59	4,069,004	21,891,035	18.59	4,069,004
Kansas	27,045,908	14.93	4,037,011	48,871,295	16.73	3,174,289
Texas	13,323,747	19.47	2,593,873	13,323,747	19.47	2,593,873
New York	7,976,985	29.27	2,335,252	18,776,496	30.23	5,976,097
Louisiana	25,540,392	8.47	2,163,934	25,540,392	8.47	2,163,934
Indiana	2,260,733	30.76	695,380	4,519,244	34.13	1,542,604
Kentucky	1,667,423	36.88	614,998	7,746,353	13.02	1,942,423
Illinois	2,690,593	13.02	350,371	2,690,593	13.02	350,371
Arkansas						
Alabama	1,022,308	19.93	203,728	1,022,308	19.93	233,728
Wyoming						
Colorado	347,397	17.96	62,398	347,397	17.96	62,398
Montana						
South Dakota						
North Dakota	58,132	44.40	25,809	58,132	44.40	25,809
Missouri	27,645	27.97	7,731	27,645	27.97	7,731
Michigan	2,060	73.30	1,510	2,060	73.30	1,510
Tennessee	1,600	25.00	400	1,600	25.00	400
Iowa	250	100.00	250	250	100.00	250
	628,578,842	16.12	101,312,381	628,578,842	16.12	101,312,381

75 Exhibitors Listed for Annual Convention of National Commercial Gas Association

Seventy-five exhibitors are listed for the annual convention of the National Commercial Gas Association to be held at the Hotel Traymore, Atlantic City, Nov. 14 to 17. The paper committee has prepared the following program for the sessions:

TUESDAY, NOV. 14:

OPENING OF CONVENTION,
PRESIDENT JANSEN HAINES, Des Moines, Iowa
ADDRESS OF WELCOME,
GOVERNOR OF THE STATE OR MAYOR OF ATLANTIC CITY
RESPONSE.....WM. J. CLARK, Mt. Vernon, N. Y.
ADDRESS OF THE PRESIDENT,
JANSEN HAINES, Des Moines, Iowa
REPORT OF NOMINATING COMMITTEE.
REPORT OF TIME AND PLACE COMMITTEE,
ARTHUR HEWITT, chairman, Toronto, Canada
REPORT OF BOARD OF DIRECTORS FOR YEAR 1916,
LOUIS STOTZ, secretary, New York, N. Y.
REPORT OF TREASURER,
OSCAR H. FOGG, treasurer, New York, N. Y.
REPORT OF FINANCE COMMITTEE,
W. H. PETTES, chairman, Newark, N. J.
REPORT OF PUBLIC POLICY COMMITTEE,
THOMAS N. MCCARTER, chairman, Newark, N. J.
MERCHANDISING AND SELLING GAS APPLIANCES,
Read by W. W. BARNES, secretary,
Manufacturers' Section, New York, N. Y.
SALESMANSHIP BOOKS AND COURSES.
REPORT OF BOARD OF EDUCATIONAL CONTROL,
DR. LEE GALLOWAY, director and chairman,
New York, N. Y.

WEDNESDAY, NOV. 15:

INDUSTRIAL FUEL BUSINESS,
HENRY O. LOEBELL, New York, N. Y.
REPORT OF INDUSTRIAL FUEL COMMITTEE,
C. E. CHAPPLE, chairman, Brooklyn, N. Y.
EXPERIENCES IN THE INDUSTRIAL FUEL FIELD,
W. A. EHLERS, N. C. G. A. industrial fuel specialist,
New York, N. Y.
HOTEL, RESTAURANT, INSTITUTION AND CLUB
INSTALLATIONS, R. MCKEAN BARRY, Baltimore, Md., and
G. M. KARSHNER, New York, N. Y.
CORRECT UTILIZATION OF HEAT (Uses to which radiant heat, heat of convection and heat of conduction could be put).....L. J. PLATT, Newark, N. J.

THURSDAY, NOV. 16:

REPORT OF ILLUMINATION COMMITTEE,
THOMAS SCOFIELD, chairman, New York, N. Y.
BURNER MAINTENANCE,
H. S. CHRISTMAN, Philadelphia, Pa.
ADEQUATE PIPING OF HOUSES,
W. T. RASCH, New York, N. Y.
REPLACING OLD TYPE WITH MODERN FIXTURES,
SAMUEL SNYDER, Philadelphia, Pa.
COMBINATION GAS AND ELECTRIC LIGHTING OF RESIDENCES,
J. P. ZINGG, Orange, N. J.

FRIDAY, NOV. 17:

GRAPHIC PRESENTATION OF GAS COMPANY STATISTICS,
STANLEY C. TARBART, Mt. Vernon, N. Y.
OFFICE PRACTICE AS IT AFFECTS MERCHANDISING,
W. H. PETTES, Newark, N. J.
REPORT OF AUXILIARY HEATING COMMITTEE,
GEORGE S. BARROWS, chairman, Providence, R. I.
REPORT OF COMMITTEE ON AMENDMENTS TO CONSTITUTION,
W. J. CLARK, chairman, Mt. Vernon, N. Y.
REPORT OF MANUFACTURERS' SECTION,
W. GRIFFIN GRIBBEL, president, Philadelphia, Pa.
REPORT OF COMMITTEE ON STANDARDIZATION OF GAS APPLIANCE SPECIFICATIONS.....O. H. FOGG, chairman,
New York, N. Y.

There will be informal meetings held in the Convention Hall on Thursday and Friday mornings, under the auspices of the industrial fuel Committee.

These meetings will be for the purpose of discussing the additional industrial pamphlets prepared by members of the committee this year and also for the purpose of discussing ways and means for developing the industrial fuel gas business.

All members of the committee are expected to be present and any members of the association attending the convention are privileged and invited to attend these special meetings. Industrial fuel men are particularly urged to be present at these two special morning sessions.

Companies and individuals are requested to make their hotel reservations direct to the Hotel Traymore as soon as possible. It

HOTEL TRAYMORE, ATLANTIC CITY

is desired to have all the members under the one roof and under this promise the management of the hotel has been most liberal in its treatment of the association and is doing everything possible to make the convention a success.

The social side of the meeting has also been well taken care of, but so arranged as not to interfere with the business sessions. The Hotel Traymore has been designated as the official headquarters of the association and all business sessions and the exhibition will be held in the hotel.

The following are among the exhibitors listed:

WM. M. CRANE COMPANY.....NEW YORK, N. Y.
DETROIT STOVE WORKS.....DETROIT, MICH.
UNION STOVE WORKS.....NEW YORK, N. Y.
MICHIGAN STOVE COMPANY.....DETROIT, MICH.
NATIONAL COMMERCIAL GAS ASSOCIATION..NEW YORK, N. Y.
ECLIPSE GAS STOVE COMPANY.....ROCKFORD, ILL.
THE ROBERTS BRASS MANUFACTURING CO....DETROIT, MICH.
THE ESTATE STOVE COMPANY.....HAMILTON, OHIO
GENERAL GAS APPLIANCE COMPANY.....NEW YORK, N. Y.
PITTSBURGH WATER HEATER COMPANY.....PITTSBURGH, PA.
THE BALTIMORE GAS APPLIANCE COMPANY..BALTIMORE, MD.
LOVEKIN COMPANY.....PHILADELPHIA, PA.
H. MUELLER MANUFACTURING COMPANY....NEW YORK, N. Y.
UTICA VALVE & FIXTURE COMPANY.....UTICA, N. Y.
G. S. BLODGETT COMPANY.....BURLINGTON, VT.
CLEVELAND HEATER COMPANY.....CLEVELAND, OHIO
MEEK OVEN COMPANY.....NEWBURYPORT, MASS.
KITSON COMPANY.....PHILADELPHIA, PA.
ELLIOTT FISHER COMPANY, BILLING AND BOOKKEEPING MACHINES.....NEW YORK, N. Y.
COMSTOCK-CASTLE STOVE COMPANY.....QUINCY, ILL.
SUPERIOR LABORATORIES.....GRAND RAPIDS, MICH.
ROYAL ENAMELING & MANUFACTURING CO.....CHICAGO, ILL.
THE CRANDALL-PETTEE COMPANY.....NEW YORK, N. Y.
HAYS MANUFACTURING COMPANY.....ERIE, PA.
RUUD MANUFACTURING COMPANY.....PITTSBURGH, PA.
TATE-JONES & COMPANY, INC.....PITTSBURGH, PA.
LONG-LANDRETH-SCHNEIDER COMPANY.NEW BRUNSWICK, N. J.
HANDY MANUFACTURING COMPANY.....PHILADELPHIA, PA.
HUMPHREY COMPANY.....KALAMAZOO, MICH.
GILBERT & BARKER MANUFACTURING CO..SPRINGFIELD, MASS.
STACK HEATER COMPANY.....BOSTON, MASS.
NIGHTINGALE COMPANY.....NEW YORK, N. Y.
RELIABLE STOVE COMPANY, DIV.....CLEVELAND, OHIO
JAS. B. CLOW & SONS.....NEWCOMERSTOWN, OHIO
SENTINEL MANUFACTURING COMPANY....NEW HAVEN, CONN.
ERIEZ STOVE & MANUFACTURING COMPANY.....ERIE, PA.
VESTA GAS RANGE & MANUFACTURING COMPANY, CHATTANOOGA, TENN.
NEW PROCESS STOVE COMPANY, DIV.....CLEVELAND, OHIO
GEORGE M. CLARK & COMPANY.....CHICAGO, ILL.
ISAAC A. SHEPPARD & COMPANY.....PHILADELPHIA, PA.
SILL STOVE WORKS.....ROCHESTER, N. Y.
THE CHAMPION STOVE COMPANY.....CLEVELAND, OHIO
RINGEN STOVE COMPANY.....ST. LOUIS, MO.
IMPROVED APPLIANCE COMPANY.....BROOKLYN, N. Y.
A. B. STOVE COMPANY.....BATTLE CREEK, MICH.
HALE & KILBURN COMPANY.....PHILADELPHIA, PA.
NATIONAL STOVE COMPANY, DIV.....LORAIN, OHIO
RATHBONE, SARD & COMPANY.....ALBANY, N. Y.
THOMAS, ROBERTS, STEVENSON COMPANY..PHILADELPHIA, PA.
THE PENINSULAR STOVE COMPANY.....DETROIT, MICH.
WEIR STOVE COMPANY.....TAUNTON, MASS.
ROBERTS & MANDER STOVE COMPANY.....PHILADELPHIA, PA.

Welsbach Company	Gloucester, N. J.
Bayley & Sons, Inc.	New York, N. Y.
Oxweld Acetylene Company	Newark, N. J.
General Fire Extinguisher Company	Providence, R. I.
International Hale Gas Mixer Co.	Providence, R. I.
The Safety Gas Lighter Company	Haverhill, Mass.
Mead Gas Heater Company	Delawanna, N. J.
The American Meter Company	New York, N. Y.
Sprague Meter Company	Bridgeport, Conn.
Lezius Automatic Draft Regulator Co.	Cleveland, Ohio
Jas. B. Slattery & Bro., Inc.	Brooklyn, N. Y.
National Tube Company	Pittsburgh, Pa.
Superior Meter Company	Brooklyn, N. Y.
Reznor Manufacturing Company	Mercer, Pa.
General Gas Light Company	New York, N. Y.
Storrs Mica Company	Owego, N. Y.
Milwaukee Gas Specialty Company	Milwaukee, Wis.
Brassart Fixture Company	New York, N. Y.
Strause Gas Iron Company	Philadelphia, Pa.

Municipal Gas Company Raises Rates

The municipal gas company at Madison, Wis., has recently raised its rates from $1.20 per thousand cu. ft. to $1.50 per thousand, and the cost of street lights from $100 per lamp per year to $315. E. W. Laper, secretary of the village board, testified that the increase in price was due to the high cost of materials, and if the increased price is not allowed by the state commission the taxpayers will have to make up the deficit of $2,500 per year.

Palo Alto, Cal., Board of Public Works Approves Purchase of Gas Company

The board of public works of Palo Alto, Cal., approved on Oct. 3, the report of City Engineer Byxbee, in regard to the advisability of purchasing the property of the Palo Alto Gas Company, and recommended to the city council that the city proceed to acquire said property.

The city council at a meeting held later in the evening passed a resolution declaring that the public necessity demands the purchase of the gas company's property. At the next meeting of the council on Oct. 11, an ordinance will be introduced calling an election to vote on the issuance of probably $70,000 in bonds for that purpose. The date of the election has not yet been determined.

Construction Notes

Portland Gas & Coke Company Petitions for Franchise in Clackamas County

The Portland Gas & Coke Company, through its attorney, H. W. Strong, has applied for a franchise from the Multnomah County line to a point near New Era, in the southern part of the county.

Utica, N. Y., Gas & Electric Company to Have Big Purifying Plant

The Utica Gas & Electric Company secured a permit from Superintendent of Buildings Cornelius Roberts to remodel a brick manufactory building on Snipe street, the extension of Washington street north of the New York Central tracks, into a purifying building, at a cost of $13,500. The building is 48 ft. long, 48 ft. wide, and 45 ft. high.

Michigan Light Company of Bay City Breaks Ground for New Holder

The holder will be situated next to the present tank and will have a capacity of 500,000 cu. ft. of gas. It will be built in three sections or lifts, having a diameter of 94 1-2 ft. and a total height of 115 ft. The bottom or ground section will be 29 ft. high. Only the foundation for the holder will be constructed at the present time, the tank itself being built early next spring. The delay is caused by the fact that the company having the contract for the erection of the tank is unable to secure materials now. The present holder has a capacity of 200,000 cu. ft.

Big Gas Main To Cross Cohansey River

A. H. Lupton & Son, contractors, have begun making the excavation on the wharf on the west side of the Cohansey River preparatory to running the 12-in. gas main across the river for the Bridgeton, N. J., Gas Light Company.

Canton, Mass., to Have Gas Supply

The selectmen of Canton, Mass., have agreed to grant a franchise to the Brockton Gas Light Company, to install gas in mains for the use of the citizens for lighting, heating and cooking purposes.

Ohio City to Build Gas Plant

The City council of Bellefontaine, Ohio, is planning to spend about $50,000 in erecting a new plant for the manufacture of artificial gas. The present plant is worn out. Bellefontaine is the only city in Ohio that owns and operates a municipal gas plant.

Seneca Falls Gas Company Plans Extensive Additions to Building

The Empire Gas and Electric Company is to make an extensive improvement to the Pew block which it purchased a year ago. The gas company occupies the west half and the two basements of the building. I. E. Hill, of Geneva, is in charge of the building matter as architect.

Akron and Ephrata, Pa., Have Gas Supply

The Interurban Gas and Improvement Company, of Phila., which recently bought and consolidated several Lancaster County gas companies, will extend mains to Akron and Ephrata.

Spencer, Mass., Gas Company Building New Holder

The concrete foundation for the big gas holder of the Spencer Gas Company has been completed and preparations are being made to start at once the erection of the iron holder.

Phoenix, Ariz., to Vote Gas Plant Bonds

An election will be held in Phoenix, Ariz., to-day, for the purpose of voting bonds in the sum of $600,000 for the construction of an electric light and gas plant to be owned and controlled by the city.

Bemidji (Minn.) Awards Gas Franchise

The city council passed an ordinance granting to the Public Improvement Company, of Minneapolis, a franchise to furnish this city with gas. Business men welcome the improvement as presaging a big boom in manufacturing and other lines of business. W. J. Stimson, secretary and manager of the gas company, stated last night that several carloads of material for the plant are en route to the city. The system will cost about $75,000, and will include the Nymore section. Work will be started the latter part of the week.

Gas Main Extension

The East Ohio Gas Company is installing a 4-in. main in South State street, at Girard, Ohio.

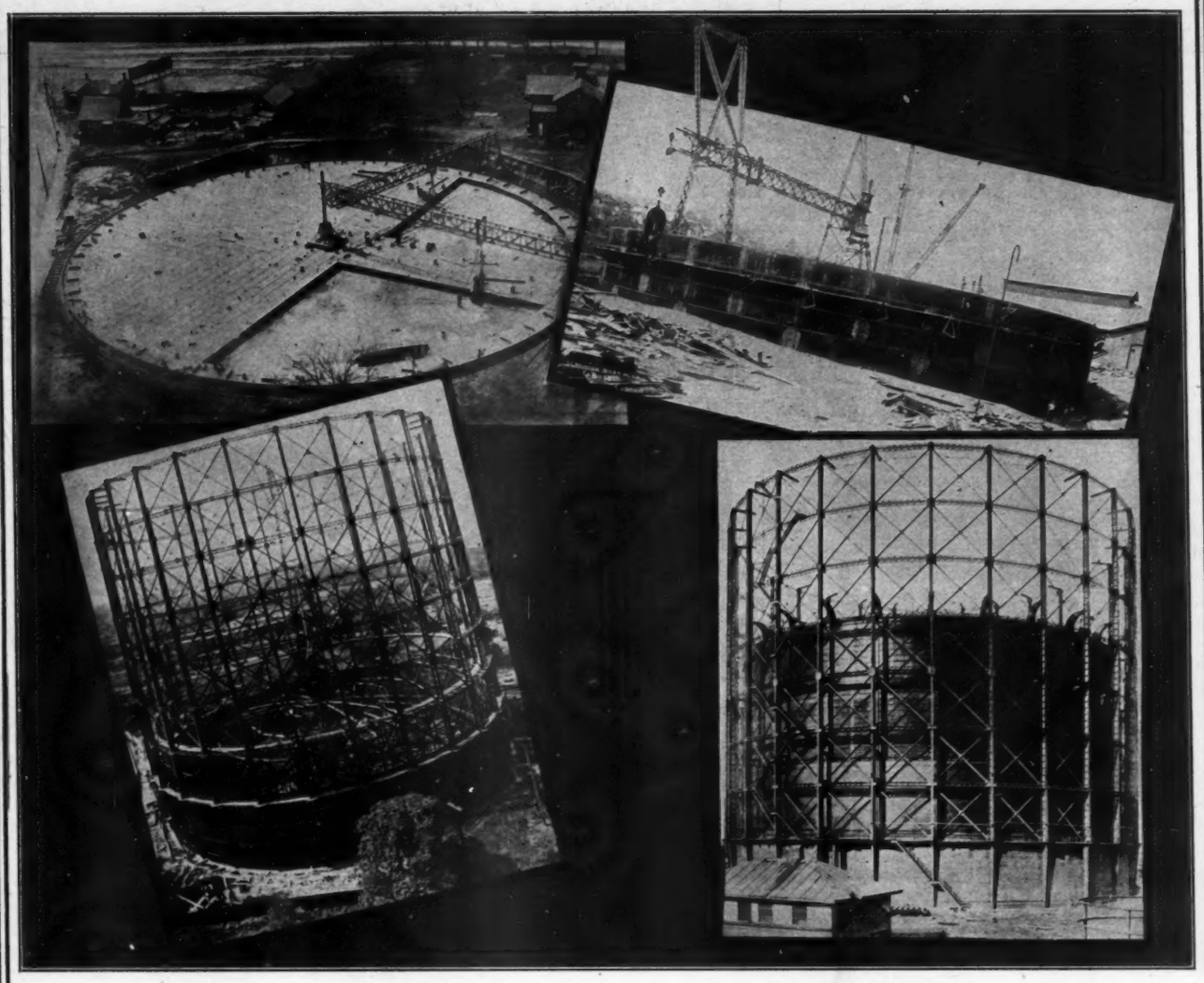
Newman, Cal., May Get New Gas Plant

The prospect of having a gas company formed in Newman, Cal., seems favorable, though nothing definite has been settled. Mr. Forney proposes to buy the old unused gas plant at a cost of $2,500. Most of the pipe laid by this former company can be used although a practically new plant is expected to be installed at a cost of $21,000.

New Engine at Seaford Gas Plant

The Sussex Gas Company has installed an additional engine at their plant, at Seaford, Del., the company finding one engine not sufficient to handle their increased business.

The company has decided to move its office from its present location to a room nearby, on Market street.



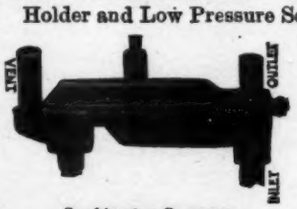
RITER-CONLEY COMPANY

STEEL CONSTRUCTION

PITTSBURGH

REYNOLDS GOVERNORS

We make anything desired in the GAS GOVERNOR or REGULATOR to meet any and all classes of reductions. Stations for DISTRICT SERVICE, INDIVIDUAL HIGH PRESSURE GOVERNORS for reducing high pressure gas to inches of water. Holder and Low Pressure Service Governors. A steady, uniform pressure can be obtained by using REYNOLDS GOVERNORS, "THE WORLD'S STANDARD." We make a specialty of the Governor business, devoting our entire time to the manufacture of same. All Governors are GUARANTEED.



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Governor and Mercury Seal

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Single District
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Financial Notes.

THE CONSUMERS' POWER COMPANY reports gross earnings for August aggregating $367,353, increase $59,979; net after taxes $174,656, increase $2,218; surplus after charges $100,145, decrease $2,218. Twelve months' gross $4,458,173, increase $818,165; surplus after charges $1,606,815, increase $333,950; balance after dividends $1,186,440, increase $290,575.

THE MASSACHUSETTS GAS COMPANIES have declared the regular quarterly dividend of $1.25 a share on the common stock, payable November 1 to stockholders of record October 14. August net earnings of the subsidiary companies combined, exclusive of munitions profits, were $206,658, an increase of $18,109, or about 9.5 per cent over the previous year. This is the smallest increase so far this year, and is due to a falling off in gas profits. The profits of the coal department increased $28,000, while a decrease of nearly $10,000 resulted in the gas department, compared with the corresponding period of the previous year. Net earnings for the two months of the new fiscal year available for dividends were $430,551, as against $388,560 for the corresponding period in 1915, an increase of $41,991, or 10.8 per cent.

THE CITIZENS GAS COMPANY OF INDIANAPOLIS reports gross earnings, for the six months ended June 30, 1916, aggregating $1,639,243, with net after taxes of $354,069, which with other income of $157,265, made total income of $511,335. In the six months the company paid the regular semi-annual dividend of $62,500, and a special dividend of $125,009 to bring total disbursements to stockholders from date of issue to their certificates to Jan. 1, 1910, the rate of 10 per cent per annum.

THE PACIFIC GAS & ELECTRIC COMPANY reports, for August, gross earnings amounting to $1,462,480 against $1,478,867 in August 1915. In August 1915 earnings were swelled by $35,808, derived directly from the Panama Pacific Exposition. Net for August 1916 was $549,837, decrease $20,725; surplus $244,558, decrease $12,622. Twelve months' gross $18,593,438, increase $604,346; net $7,829,299, increase $164,766; balance after charges and dividends on preferred stock $2,968,611, increase $195,786.

THE STANDARD GAS & ELECTRIC COMPANY'S net earnings for twelve months ended August 31 were $1,615,447, compared with $1,457,332 in previous year, and $1,428,306 in year before that.

THE TENNESSEE RAILWAY, LIGHT & POWER COMPANY reports, for eight months ended August 31 gross $3,140,833, increase $640,200; net after taxes $1,463,875, increase $435,251; surplus after taxes $501,820, increase $420,497.

THE MASSACHUSETTS GAS COMPANIES report gross for year ended June 30, 1916, $2,902,921, against $2,834,733 in 1915. Surplus after charges was $1,660,167, an equivalent to 6.64 per cent on common stock, against 5.91 per cent earned in previous year.

THE CITIES SERVICE COMPANY declared extra dividend on common stock of 4 per cent in addition to regular monthly dividend of ½ per cent on common and ½ per cent on preferred stock.

THE COMMONWEALTH POWER, RAILWAY & LIGHT COMPANY and constituent companies report gross earnings for twelve months ended Sept. 30 as $16,340,521, increase 14.8 per cent; net $8,507,831, increase 14.9 per cent; balance after charges and dividends on preferred stock, $1,638,724, increase 29.7 per cent, and equivalent to 8.8 per cent on common stock. Gross for September $1,434,201, increase 15 per cent; net $709,558, increase 12.9 per cent.

THE UTAH SECURITIES CORPORATION reports for September of all properties controlled, gross earnings $478,476, increase $66,040; net $267,647, increase $46,635. Twelve months' gross $5,372,587, increase $702,302; net $2,956,523, increase $572,329.

REPUBLIC RAILWAY & LIGHT, including subsidiaries, reports for September gross earnings of $334,443, increase $68,141; net $150,754, increase $38,385; balance after charges and preferred dividends $52,550, increase $22,871. For nine months ended September 30, gross earnings were $2,930,648, increase $695,727; net $1,223,508, increase $361,101; balance after charges and preferred dividends $365,498, increase $239,212.

THE COLUMBUS RAILWAY, POWER & LIGHT COMPANY reports the following earnings for August: Gross $290,082, increase $47,783; net after taxes $113,297, increase $24,570; surplus after charges $70,434, increase $21,939. Twelve months' gross $3,402,472, increase $346,179; net after taxes $1,418,054, increase $175,487; balance after charges and dividends $625,414, increase $138,869.

THE UTAH POWER & LIGHT COMPANY has filed with the secretary of state in Portland, Me., certificate of increase in capital stock from $49,000,000 to $60,000,000.

THE CONSOLIDATED GAS, ELECTRIC LIGHT & POWER COMPANY OF BALTIMORE has made the announcement that official plans have been completed which contemplate retirement at 120 of preferred stock. In connection with this, a syndicate of prominent bankers have completed arrangements with the company for a more comprehensive financial plan than the one recently suggested by the company. The latter plan, therefore, will be abandoned, the preferred stock retired, and new rights issued to common stockholders.

Current Prices of Public Utility Securities

	Bid	Asked
Adirondack Elec. P	25	27
Adirondack Elec. P. pf	83	85
American Gas	120	123
*American Gas & Electric	152	156
*American Gas & Electric pf	50	52
American Light & Traction	373	377
American Light & Traction pf	109	112
American Power & Light	70	71
American Power & Light pf	83	85
American Public Utilities	42	46
American Public Utilities pf	73	76
American Water W. & Elec	8¼	9
Amer. W. W. & E. 1st pf	62	65
Amer. W. W. & E. part'p pf	22	25
Carolina Pow. & Lt	27	30
Carolina Pow. & Lt. pf	97	100
Cities Service	324	328
Cities Service pf	92¼	94
Colorado Power	28½	30
Colorado Power pf	99	101½
Commonwealth, Pr. Ry. & Lt	62	64
Commonwealth, Pr. Ry. & Lt. pf	85	87
Electric Bond & Share pf	99½	100
Empire District El. pf	88½	92½
Federal Light & Traction	18	20
Federal Light & Traction pf	50	54
Gas & Electric Securities	290	310
Gas & Electric Securities pf	95	100
Northern States Power	98	99
Northern States Power pf	99	100
North. Ont. Lt. & P	14	17
North. Ont. Lt. & P. pf	55	60
Ozark Power & Water	44	48
Pacific Gas & Electric	57	58
Pacific Gas & Electric pf	90	91½
Republic Ry. & Light Co	52	53
Republic Ry. & Light Co. pf	80	82
*Standard Gas & Electric	14½	15¼
*Standard Gas & Electric pf	41	42
So. Cal. Edison	91	92
So. Cal. Edison pf	106	108
Tennessee Ry., Light & Power	12	12½
Tennessee Ry., Light & Power pf	53	54
United Light & Railways	48	51
United Light & Railways 1st pf	76	78
Western Power	19	20
Western Power pf	69½	70

*Par value $50